JUNE 3, 1961

Chemical Week

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In-plant banking for employees pays dividends to CPI companies . p. 41

Reciprocity ties the knot— more firms wed sales to purchasing . . p. 69

Chlorine cleanup: Here's how new German equipment boosts purity . . p. 83

'Prefab' houses— happy home for growing specialties family . . . . . p. 87

IN THEIR HANDS: YOUR FOREIGN PLANT . . . . . p. 49

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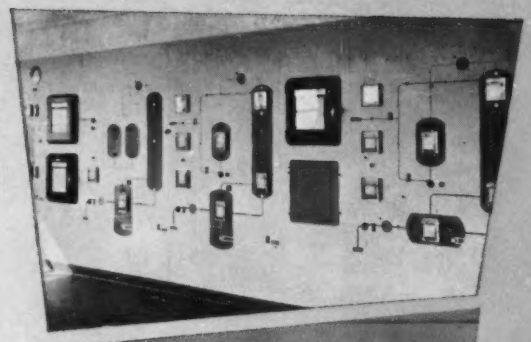

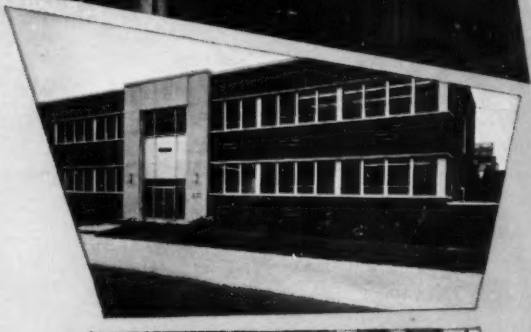

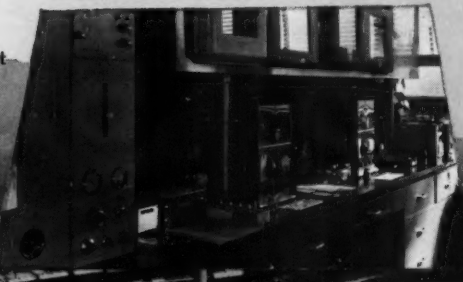

Acetaldehyde Ammonia
Acetophenone
Acetyl Chloride
Adipoyl Chloride
Anisic Aldehyde
Anisyl Acetone
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Azelaoyl Chloride
Benzalacetophenone
Benzhydrol
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Benzophenone Tech.
Benzyl Alcohol Tech.
Benzyl Cyanide
Butyroyl Chloride
n-Caproic Acid
Caproyl Chloride
Capryloyl Chloride
p-Chlorbenzhydrol
p-Chlorbenzhydryl Chloride
p-Chlorbenzophenone
p-Chlorbenzyl Cyanide
Cinnamoyl Chloride
Decanoyl Chloride
Dibenzyl Ether
Dicyclohexyl Carbinol
Dicyclohexyl Ketone

INTERMEDIATES

p,p'-Dimethoxybenzophenone
Diphenyl Acetone (unsym)
Diphenyl Methane
Ethyl Formate Tech.
Ethyl Phenylacetate
beta Ionone
Isobutyroyl Chloride
Isovaleric Acid
Isovaleroyl Chloride
Lauroyl Chloride
p-Methoxy Phenylacetic Acid
Methyl Heptenone
Methyl Phenylacetate
Myristoyl Chloride
Oleoyl Chloride
Palmitoyl Chloride
Pelargonyl Chloride
Phenylacetic Acid
Phenylacetone
Phenylacetyl Chloride
Phenyl Propyl Alcohol (1,3)
Phenyl Propyl Chloride (1,3)
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1932

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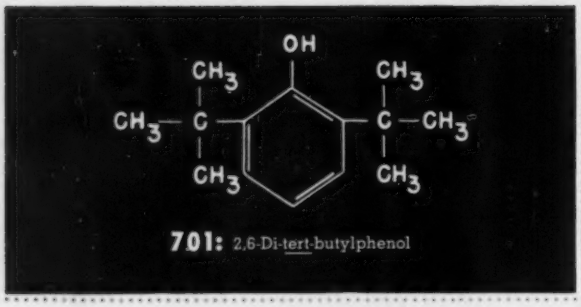
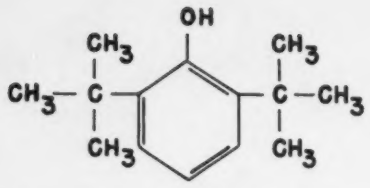
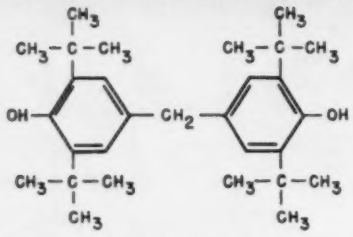


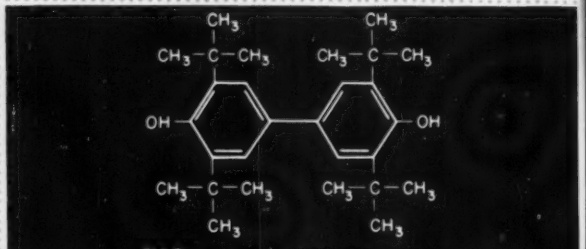
701: 2,6-Di-tert-butylphenol



733: Mixed tert-butylphenols (75% min. of 2,6-di-tert-butylphenol)



702: 4,4'-Methylenebis(2,6-di-tert-butylphenol)



712: 4,4'-Bis(2,6-di-tert-butylphenol)

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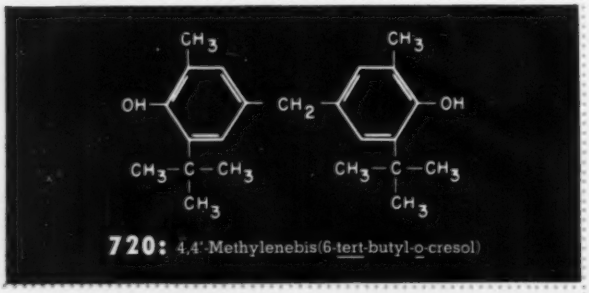
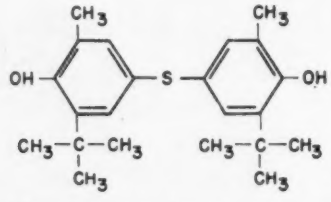
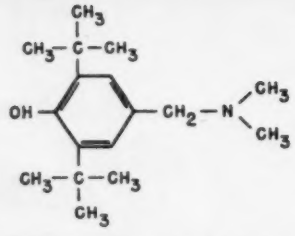


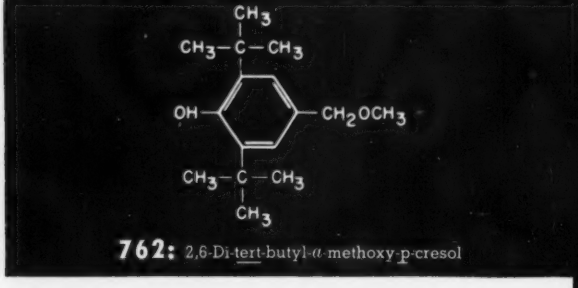
720: 4,4'-Methylenebis(6-tert-butyl-o-cresol)



736: 4,4'-Thiobis(6-tert-butyl-o-cresol)



703: 2,6-Di-tert-butyl-α-dimethylamino-p-cresol



762: 2,6-Di-tert-butyl-α-methoxy-p-cresol

ON THE COVER: Arab laborers unload pipe on an Esso Research-Jersey Standard project in Saudi Arabia—one of the many foreign projects won by U.S. engineering firms (see p. 49).

Chemical Week

Vol. 88, No. 22 JUNE 3, 1961

5 **VIEWPOINT—Action is needed to protect Du Pont and GM stockholders.**

7 LETTERS

7 MEETINGS

17 BUSINESS NEWSLETTER

21 **Facing court's ultimatum, Du Pont seeks painless parting from GM stock.**

23 CPI shipments to Cuba point up possible leaks in U.S. Red-trade embargoes.

24 Minority stockholders sue to void Virginia-Carolina phosphate deals.

24 First fruit of UOP-Trubek merger: new plant to make anti-ozonants.

24 Europe's trade blocs edge toward unity, but major problems remain.

27 WASHINGTON NEWSLETTER

33 **INTERNATIONAL—Smart trading is key to success of fertilizer seller.**

41 **ADMINISTRATION—Bank-where-you-work plans gain favor in CPI.**

49 **ENGINEERING—Foreign business poses challenges to U.S. engineering firms.**

60 Novel "foaming" process bids for water purification, sewage clean-up jobs.

65 TECHNOLOGY NEWSLETTER

69 **SALES—The story behind the CPI's closer marketing-purchasing ties.**

75 MARKET NEWSLETTER

79 **MARKETS—Polyurethane elastomers promise major sales growth.**

83 **PRODUCTION—Germany's Bayer joins the push for purer chlorine.**

87 **SPECIALTIES—Prefab housing: promising specialties market—with pitfalls.**

92 BUSINESS BENCHMARKS

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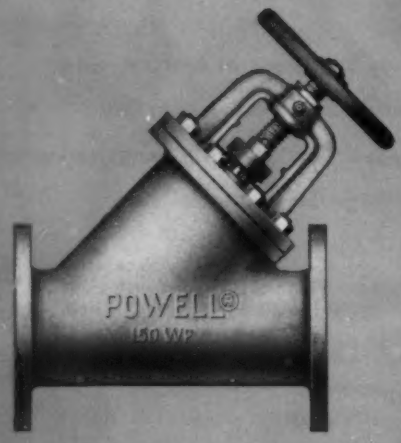
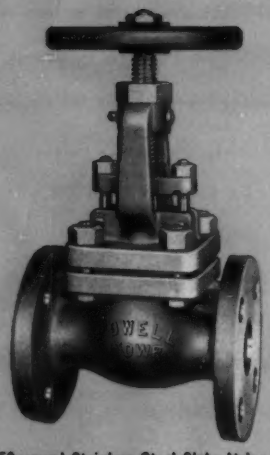
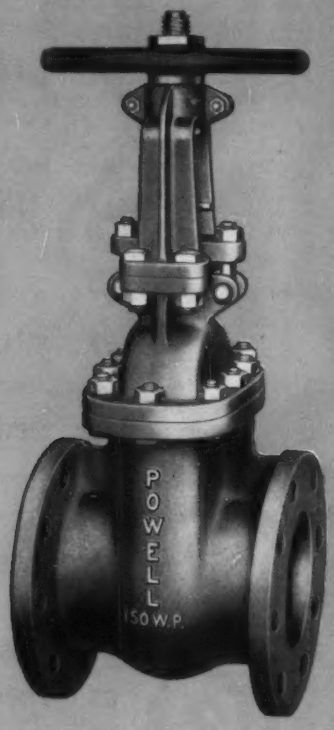


150-pound Stainless Steel "Y" Valve—Fig. 1944. Bolted flanged yoke-bonnet, outside screw rising stem. Renewable disc, integral seat. Sizes, 4" through 8".



150-pound Stainless Steel Globe Valve—Fig. 2475. Bolted flanged yoke-bonnet. Outside screw rising stem. Renewable plug type disc, integral seat. Sizes, ¼" through 3".



150-pound Stainless Steel Gate Valve—Fig. 2453. Bolted flanged yoke bonnet, outside screw rising stem. Fully guided interchangeable solid or split wedge—integral seat. Sizes, 2½" through 18".

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Du Pont: Law vs. Sense

THOSE OF US who aren't lawyers are often baffled. It seems to us laymen that the law, as interpreted by its professional practitioners, and as contrasted with common sense, often seeks out intricacies and dubious strategems that logically support the letter—but not the spirit—of the written law. It all boils down, of course, to the lamentably difficult task of legislating now for the distant future. Congressmen can't divine the future, and on top of that they have the habit of writing their bills in the language of the past. Hence the courts have to work overtime trying to figure out how the old laws should be applied to new situations.

This is the most charitable construction we can put on the Supreme Court's recent and debatable decision *(see also p. 21)*.

First of all, we still see no evidence that the investment by Du Pont in GM stock is in any way inimical to the public interest. Let's go all the way for the moment and assume that the tie-up has resulted, as the Dept. of Justice has contended, in a preferential supplier-customer relationship. Du Pont's big stake in GM's financial well-being would seem to assure that Du Pont would sell to GM only top-quality materials and at competitive prices. Actually, of course, the trial brought out that GM was not a captive market; that it frequently shifted its purchasing to other producers of chemicals and coatings, and that when Du Pont did sell to GM it had to meet the competition on all points.

But that's all water over the dam. The court has decided that the relationship was, indeed, one that is prohibited.

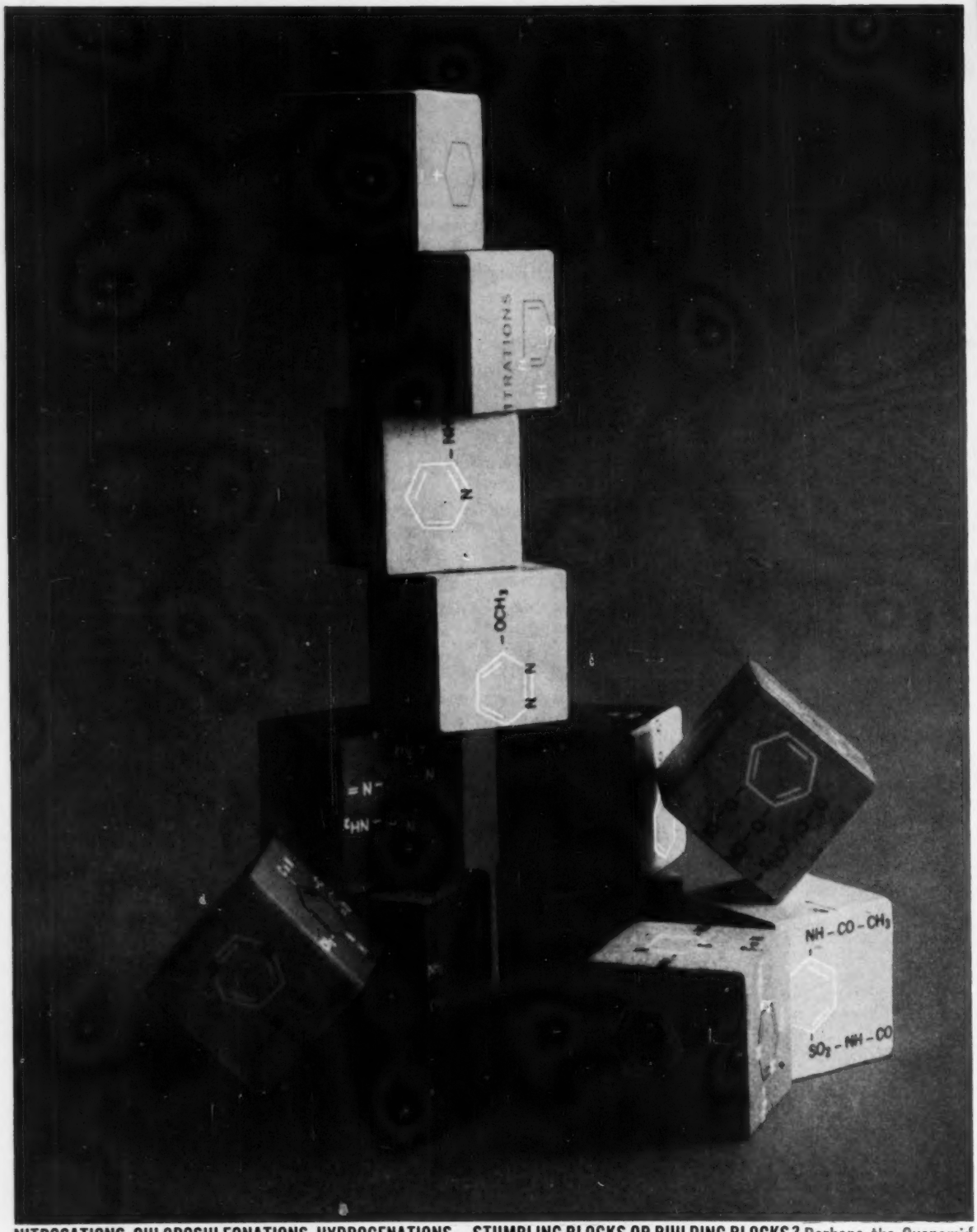
What, then, of the call for divestiture? If Du Pont management were unmindful of its own and GM's stockholders, it could simply sell its GM stock (depressing the price, in accordance with the natural law—still unrepealed by the Supreme Court—of supply and demand). It could presumably invest the proceeds—possibly only a third of the $3-billion market value—in other profitable enterprises; but with the capital thus reduced, there would surely be lower income.

This, as we read it, is not Du Pont's approach. The company does not seem ready to scuttle the stockholders' interests by dumping the stock on the open market. Rather, it looks to a distribution of its GM stock to Du Pont stockholders; but it does not want to subject them to a heavy income tax on the value of the distribution.

Agreed. But logic rears its head and asks, Why is this "ordinary" income? To our perhaps naive mind, Du Pont's GM stock represents an accumulation of earned capital; and the enforced distribution of that capital—to bring the company into compliance with a provision of law that was not believed to be applicable to Du Pont's GM investment—appears to be anything but "ordinary" income.

The tax collector, of course, is hardly dissuaded by such reasoning. He is buttressed by the law. Therefore it is only just that the stockholder be protected against a tax on involuntary income. In previous Congressional sessions, bills to accomplish this end have died in Senate and House committees. This recent Supreme Court decision demands action by the Congress and approval of the President.

And let us not be lulled into indifference by the fallacy that such legislation is designed simply to protect the rich. The progress of democratic capitalism depends on securing a broad base of investment. The small stockholder, much more than the large, needs the protection of society (through his government) against the backlash of hard-to-discern "incipient illegalities" that he, certainly, had nothing to do with.



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LETTERS

Export Our Standards

TO THE EDITOR: A recent letter in CHEMICAL WEEK (*April 8, p. 7*) . . . complains of our unfavorable import-export balance as being caused by our high labor costs. There are further debatable points in the letter, . . . based on statements that our competitors being socialized are in better positions to regulate their economies.

In my many years of observation I have found that those individuals who constantly complain of high labor costs, who oppose fair employment practices, and who oppose the minimum wage laws are generally:

(1) very well heeled themselves, and (2) are owners of, or are very closely associated with, inefficient, marginal types of business enterprises.

Does the gentleman propose that we give up our high standard of living so that we can compete more efficiently with foreigners? Should we reduce our living standard to a handful of rice and 50¢ per day? . . .

We are not satisfied with a handful of rice and a bamboo hut. And because we have the demand of our huge consumer market, thanks to our high wages, we can manufacture the cars, the refrigerators, the TV's, the motor boats, and the myriad of consumer items *ad infinitum* that keep our business humming. . . .

Why tear ourselves down? Let's build up our foreign competitors to the point where they also have demanding living standards. . . . The best thing we can export is our way of life. If we show them how we live, how a free labor force can enjoy some of the blessings of life, I am sure that this myth of cheap foreign labor will soon cease. . . .

CARL R. BLUMENSTEIN
Marietta, Ga.

Reactive Dyes

TO THE EDITOR: While we were, of course, in substantial disagreement with some of the opinions expressed in the . . . article on reactive dyes (*March 25, p. 53*) we particularly feel that a correction of fact is required.

You state (*p. 56*) that the Sandoz Drimarene reactive dyes incorporate a halogenated triazine group. This is not so.

An article on the development of our reactive dyes system . . . soon to be published . . . says: "Working independently of each other, Sandoz, Ltd., and J. R. Geigy Ltd. found . . . a system in tetrachloropyrimidine. Using tetrachloropyrimidine in combination with suitable chromophores, we have succeeded in developing a range of reactive dyes . . ."

A. GIAMARA
Sandoz, Inc.
New York

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Manufacturing Chemists' Assn., annual meeting, Greenbrier, White Sulphur Springs, W. Va., June 8-10.

Gordon Research Conferences, Colby Junior College, New London, N.H.—June 12-16, petroleum; June 19-23, catalysis; June 26-30, nuclear chemistry; July 3-7, polymers; July 10-14, textiles; July 17-21, elastomers; July 24-28, corrosion-oxidation of metal surfaces; July 31-Aug. 4, medicinal chemistry; Aug. 7-11, separation and purification; Aug. 14-18, instrumentation; Aug. 21-25, food and nutrition; Aug. 28-Sept. 1, cancer.

Gordon Research Conferences, New Hampton School, New Hampton, N.H.—June 12-16, chemistry of coal; June 19-23, chemistry and physics of liquids; June 26-30, proteins; July 3-7, scientific information—problems in research; July 10-14, magnetic resonance; July 17-21, radiation chemistry; July 24-28, organic reactions and processes; July 31-Aug. 4, steroids and other natural products; Aug. 7-11, statistics in chemistry and Chemical engineering; Aug. 14-18, analytical chemistry; Aug. 21-25, inorganic chemistry; Aug. 28-Sept. 1, adhesion.

Gordon Research Conferences, Kimball Union Academy, Meriden, N.H.—June 12-16, lipide metabolism; June 19-23, cell structure and metabolism; June 26-30, physical metallurgy; July 3-7, vitamins and metabolism; July 10-14, chemistry, physiology and structure of bones and teeth; July 17-21, organic coatings; July 24-28, chemistry at interfaces; July 31-Aug. 4, solid-state studies in ceramics; Aug. 7-11, toxicology and safety evaluations; Aug. 14-18, chemistry and physics of solids; Aug. 21-25, photonuclear reactions; Aug. 28-Sept. 1, high-temperature chemistry—molten salts.

Gordon Research Conferences, Tilton School, Tilton, N.H.—June 26-30, ion exchange; July 3-7, chemistry of carbohydrates; July 10-14, chemistry and metallurgy of semiconductors; July 17-21, microbiological deterioration; July 24-28, biochemistry and agriculture; July 31-Aug. 4, electrodeposition; Aug. 7-11, glass.

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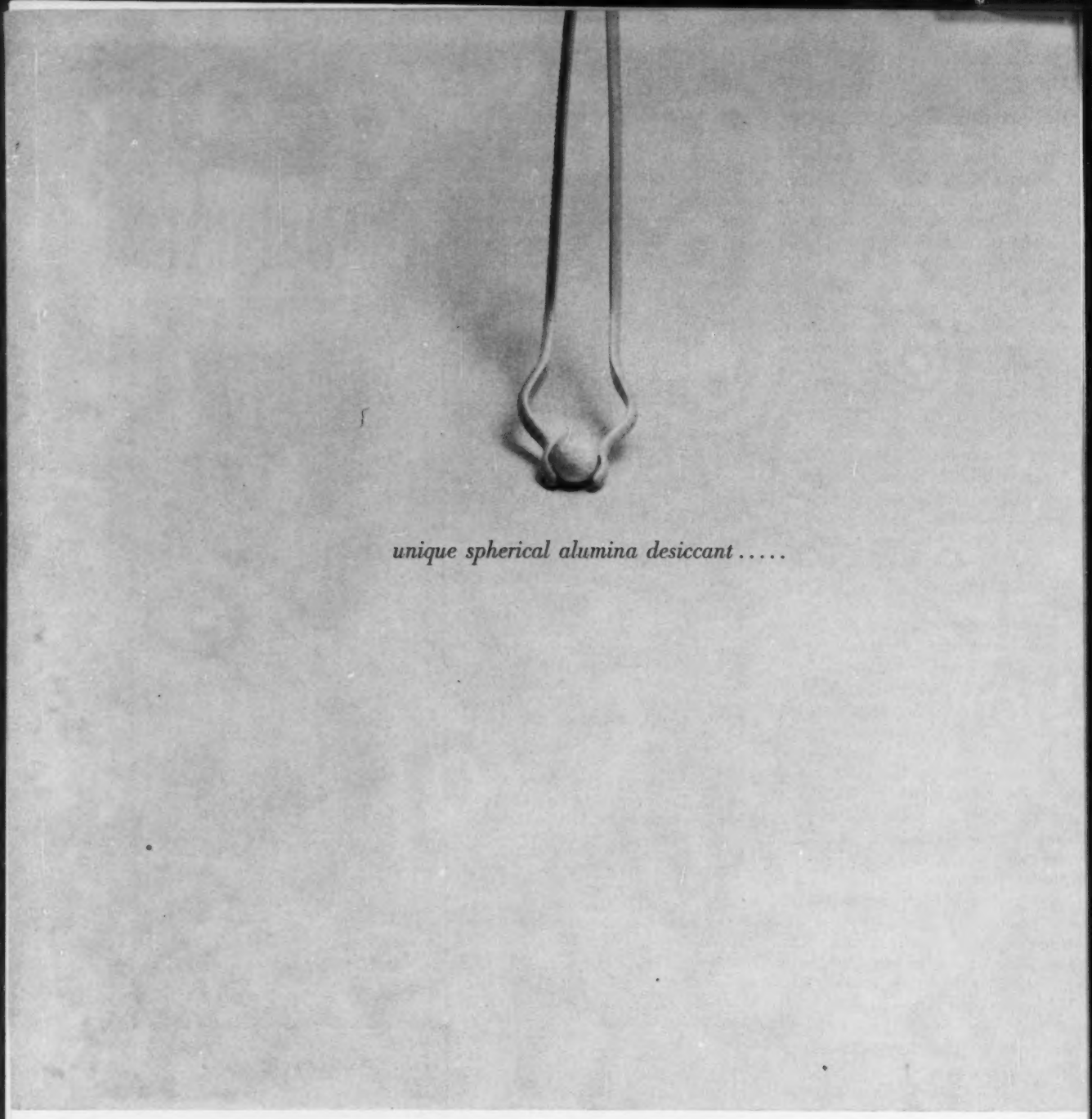

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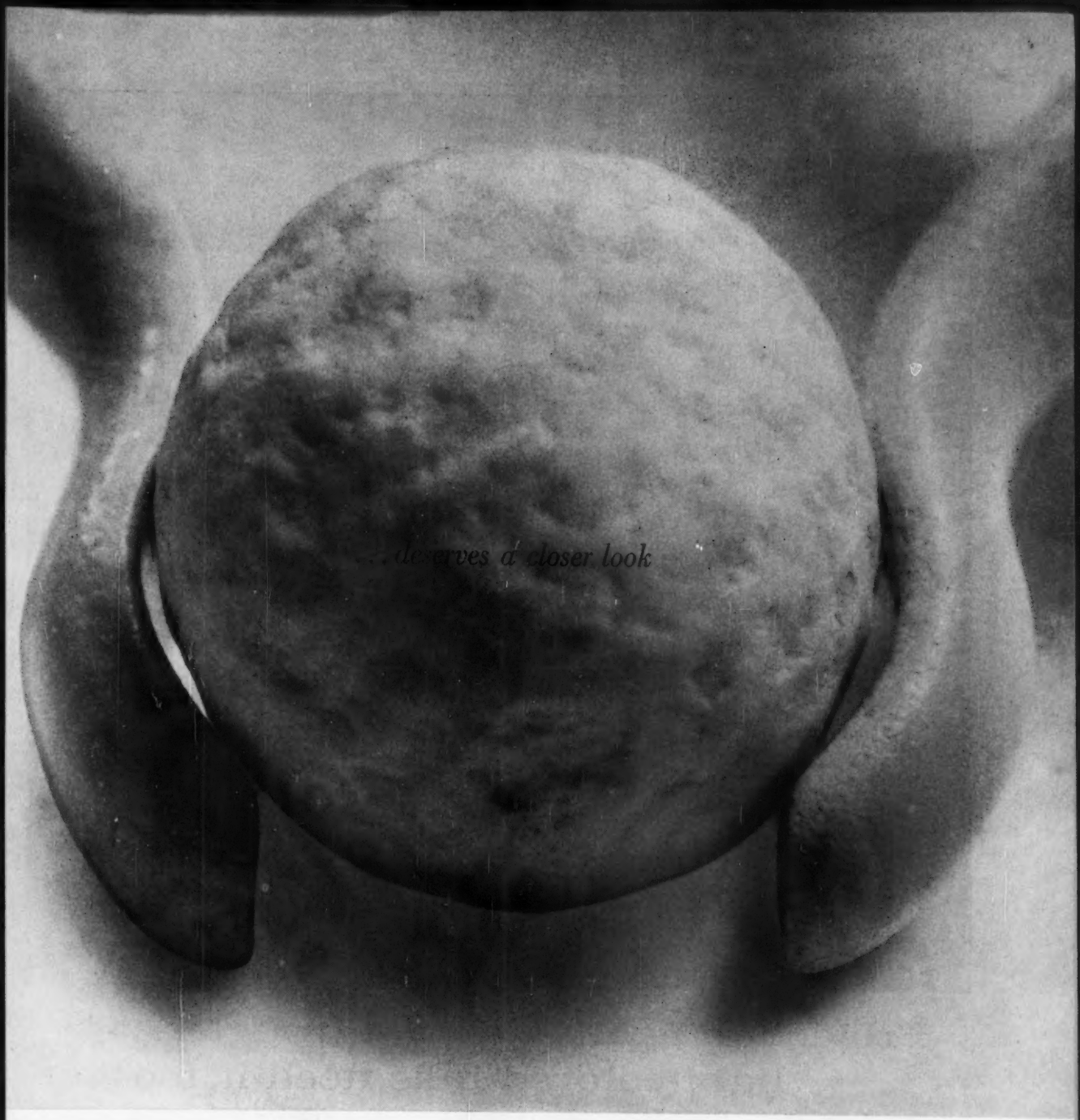

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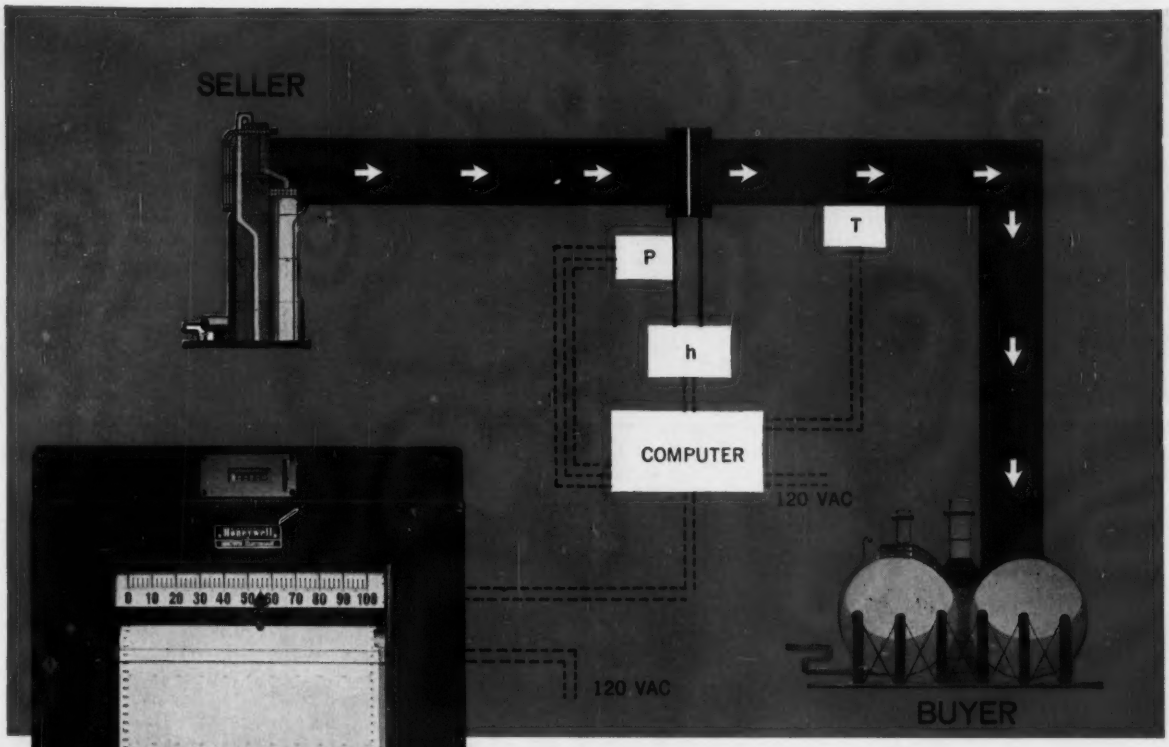

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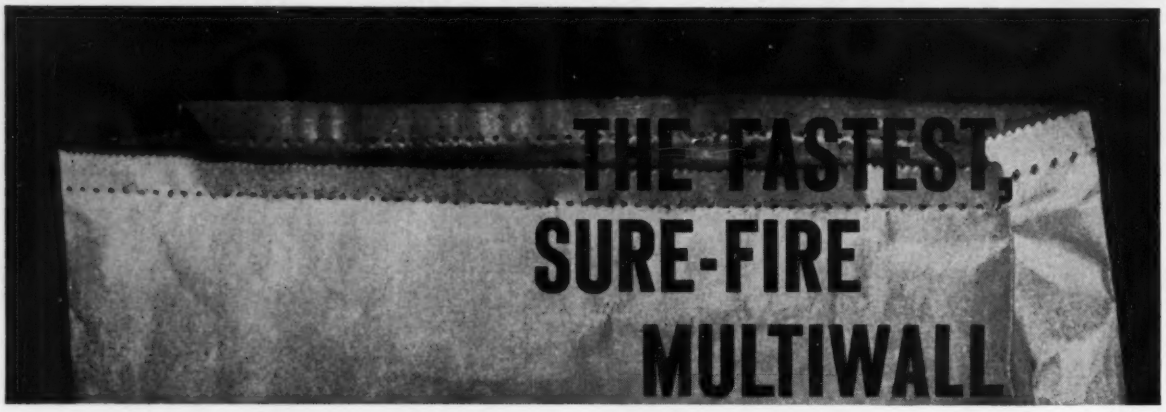

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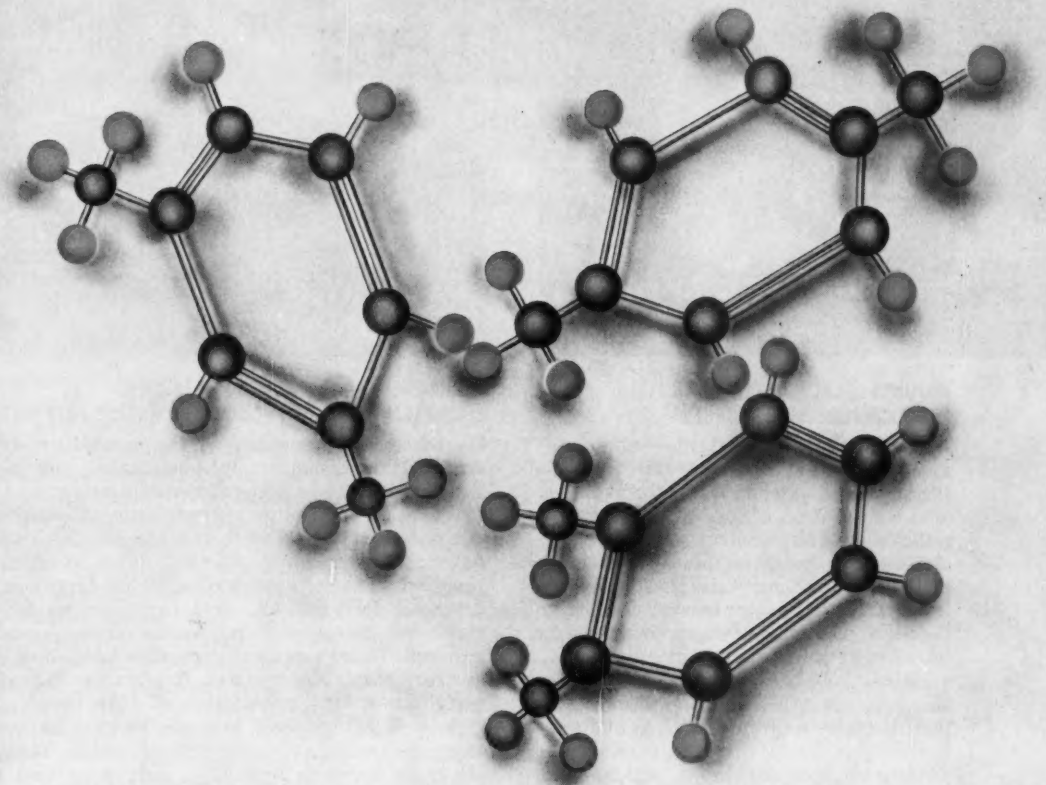

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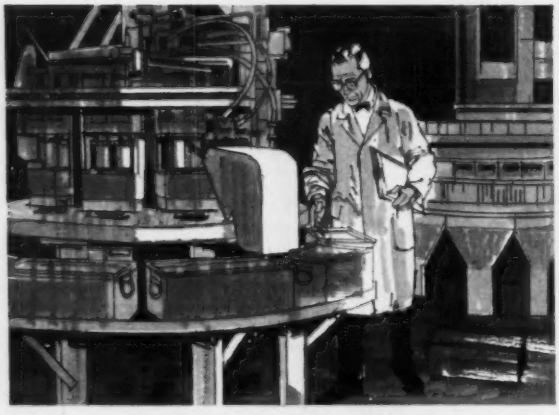

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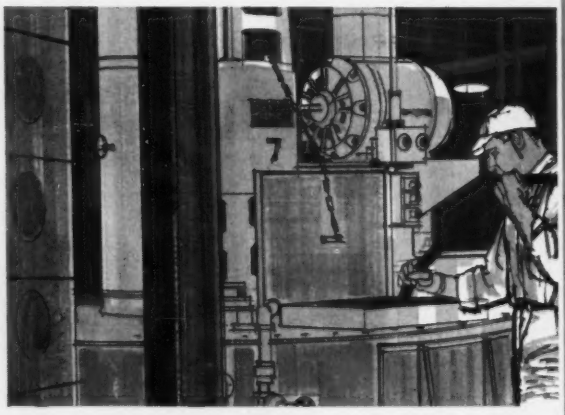

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Recent research has uncovered the versatility of Armour's Armosul* compounds: alpha-sulfonated palmitic acid, Armosul 16...and alpha-sulfonated stearic acid, Armosul 18. Since they are sulfonated products, the Armosuls are completely stable to acids and alkalies. With these difunctional acids, mono-, di- and mixed salts are easily prepared. The salts are suggested for improvement of detergent formulations...and to aid in production of synthetic detergent bars. As flotation reagents, the Armosuls remove mineral impurities from silica sand to assure quality glass products. Reports also indicate their usefulness in the preparation of high dropping-point greases. With Armosuls, it is easy to form water-soluble esters with anionic surface active properties. These esters are quite stable to hydrolysis, suggesting uses as surfactants in acid dyeing, pickling and electroplating.

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JEFFERSON CHEMICALS

125

Business Newsletter

CHEMICAL WEEK
June 3, 1961

U.S. producers of rayon staple fiber received a setback last week. The U.S. Tariff Commission ruled that imports from at least two countries, Belgium and France, were not harmful to domestic makers.

The commission, considering the cases under the Antidumping Act at the request of the Treasury Dept. (*CW Business Newsletter, May 13*), found that during the import period concerned—about the first nine months of '60—U.S. producers were pricing their products "aggressively," and sales of imported fiber declined sharply.

The importer gained no new customer, said Tariff, and there is "no evidence that he sold at a price lower than that charged by domestic producers for the same type of fiber."

To similar cases are still pending before the commission; these involve rayon fiber imports from West Germany and Cuba. There's no indication how Tariff will rule, but a decision is expected by July 17.

Earlier, spokesmen for the U.S. Rayon Staple Fiber Producers Assn. had urged a finding of injury, insisted that even if the "lower-priced sales (of foreign material), were not in large quantities, they nonetheless constituted injury to the domestic industry and should be penalized under antidumping regulations."

•

Tax on earnings of Farmer Cooperatives? The issue was argued before the House Ways and Means Committee as part of its hearings on the President's bundle of tax proposals. Likely outcome: a number of court-discovered loopholes, through which co-ops have been escaping taxation, may finally be closed by the restoration of a '51 law that required co-op earnings be taxable to either the co-op itself or to the members.

How big have co-ops become? Most have grown considerably, but one committee witness, Monsanto's Edwin Putzell, Jr., representing the Manufacturing Chemists' Assn., spelled out the growth of the farmer supply co-ops. Annual volume of all such farmer groups, said Putzell, has hit $2.4 billion—and $1.4 billion of this is done by 21 major regional co-ops. Many are highly integrated corporations dealing in insecticides, farm chemicals, fertilizers, paints and roofing materials, besides farm equipment, seeds, grain, and feed.

MCA suggests that as a logical extension of present revenue provisions that tax investment income to co-ops, income from the use of capital in manufacturing, processing or mining activities should also be taxed.

•

Butadiene for Canada. Polymer Corp. Ltd. has awarded a $1.5-

million-plus contract to The Fluor Corp. (Canada) to put up a butadiene extraction unit at Sarnia.

Reports are that the new plant will be the first in the Western Hemispere to use Shell Development Co.'s new acetonitrile extractive distillation process that yields a high-purity product. No capacity data is available, but construction will start this month, with completion slated for the fall of this year.

•

Du Pont has made its long-anticipated move into the home movie field; a deal has been signed with camera-maker Bell & Howell. B&H will distribute Du Pont's new color film that will be available in home movie and 35-mm. sizes.

The union comes as a surprise to Wall St. matchmakers who had pegged Technicolor as Du Pont's most likely partner in the venture.

Distribution of the new film (of the same general type as current amateur color films) should be under way next year. Also planned: a special processing service.

•

Plans for expansions outside the U.S. were disclosed by Bzura Chemical at its annual stockholders meeting last week.

The company will set up a subsidiary in Haiti to sell castor beans and sugar cane juice. Chairman Hyman Bzura says a contract has already been signed with the Haitian government. If this deal pays off, Bzura may then put up a castor oil extraction unit and a sugar cane juice concentrating unit. (Castor oil is a sebacic acid raw material.)

•

A petrochemical project for the tiny Sheikdom of Kuwait. Kuwait Petrochemical Co. was established last week. Will be 40% owned by the government, 40% by Oronzio de Nora Associates and 20% by local interests.

The Oronzio group consists of Oronzio de Nora (the Italian engineering firm that will design, build and operate the project) and some of its European and South American "friends and associates."

Construction of the new complex will begin in October; production is scheduled for '63. Products to be turned out initially include caustic, chlorine, ammonia, urea, polyvinyl chloride, acetylene, oxygen and hydrogen.

Meanwhile, de Nora reports other projects in the works. In West Pakistan, in a late stage of negotiation, are plans for a $10-million complex for the Saigol Industrial Group. In Brazil, the company has signed a contract to put up a $20-million Carbocloro plant (partly owned by Diamond Alkali (*CW Business Newsletter, May 20*) and has made another pact for a similar plant in Argentina.

Among the important factors in Shell Chemical's decision to make polystyrene were its extensive background in polymers and its raw material position. Two other Shell thermoplastics followed quickly—polypropylene and polyethylene.

BULLETIN:

On May 3, 1960, a remarkable thermoplastics decision was made by Shell Chemical

Read about this Shell decision. And how you can start benefiting today from a major new source of polystyrene, polypropylene and polyethylene that resulted from it.

On MAY 3, 1960, Shell Chemical, a company long basic in styrene monomer and SBR rubber, decided to combine the two in full commercial production of Shell high impact polystyrene. Why was this remarkable?

A revealing fact on polystyrene

The condition of the polystyrene market was not attractive. There was oversupply from some of America's finest companies. The field was mature and Shell was starting late.

One revealing fact offset this situation. *Shell, with its excellent background in polymer chemistry—as exemplified by Shell Isoprene Rubber, the industry's first commercially produced synthetic/natural rubber—could make positive contributions to the thermoplastics field in the form of new products.* But Shell would be severely handicapped without a thorough understanding of how the thermoplastics market works and what it wants.

Result? Shell's decision to go full speed ahead with high quality general purpose, medium and high impact Shell polystyrenes, plus a rapidly expanding technical sales force.

80 million pounds of polypropylene

Two other thermoplastic developments followed quickly.

One, Shell's announcement in October, 1960, for an 80 million pounds a year polypropylene plant with customer service and research facilities to be built near Woodbury, N. J. Two, an arrangement by which Shell will resell limited quantities of polypropylene until this plant comes on stream.

Custom-made polyethylene

And this, in turn, led to a third important thermoplastic.

In order to round out a complete line of thermoplastics, Shell Chemical, in January, 1961, made arrangements to supply the industry with the highest quality custom-made polyethylenes.

How to start benefiting

Thus, within 8 months, Shell became an important factor in three plastics: Shell polystyrene, Shell polypropylene and Shell polyethylene.

The next 8 months should be even more important. Shell will be going full speed ahead searching for new polymers you want.

Now is the time to let Shell's technical representative know your needs. Tell him about them on his next visit or write Shell Chemical directly at:

42-76 Main St., Flushing 55, N. Y. FLushing 3-4200; 20575 Center Ridge Rd., Cleveland 16, O. EDison 3-1400; 6054 West Touhy Ave., Chicago 48, Ill. SPring 4-6711; or 10642 Downey Ave., Downey, Calif. SPruce 3-0601.

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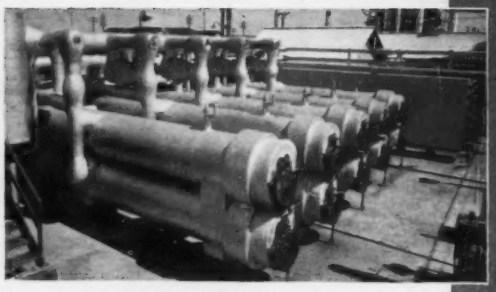

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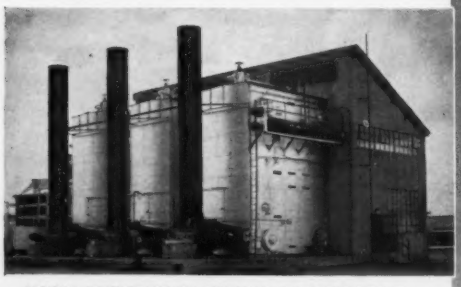

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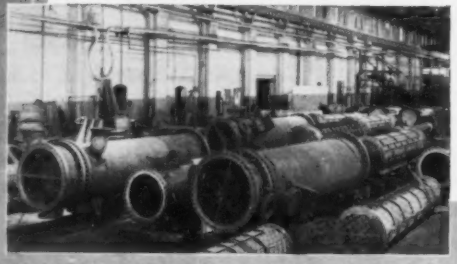

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Chemical Week / JUNE 3, 1961

Which Way for Du Pont?

Du Pont is losing assets worth $3-billion. Problem: minimizing the pain.

Du Pont this week is groping for the most painless possible way to part with assets carried at 40% (book value) of the company's total net worth. Whatever happens, its chemical operations — the most extensive and lucrative in the world—will not be ruffled.

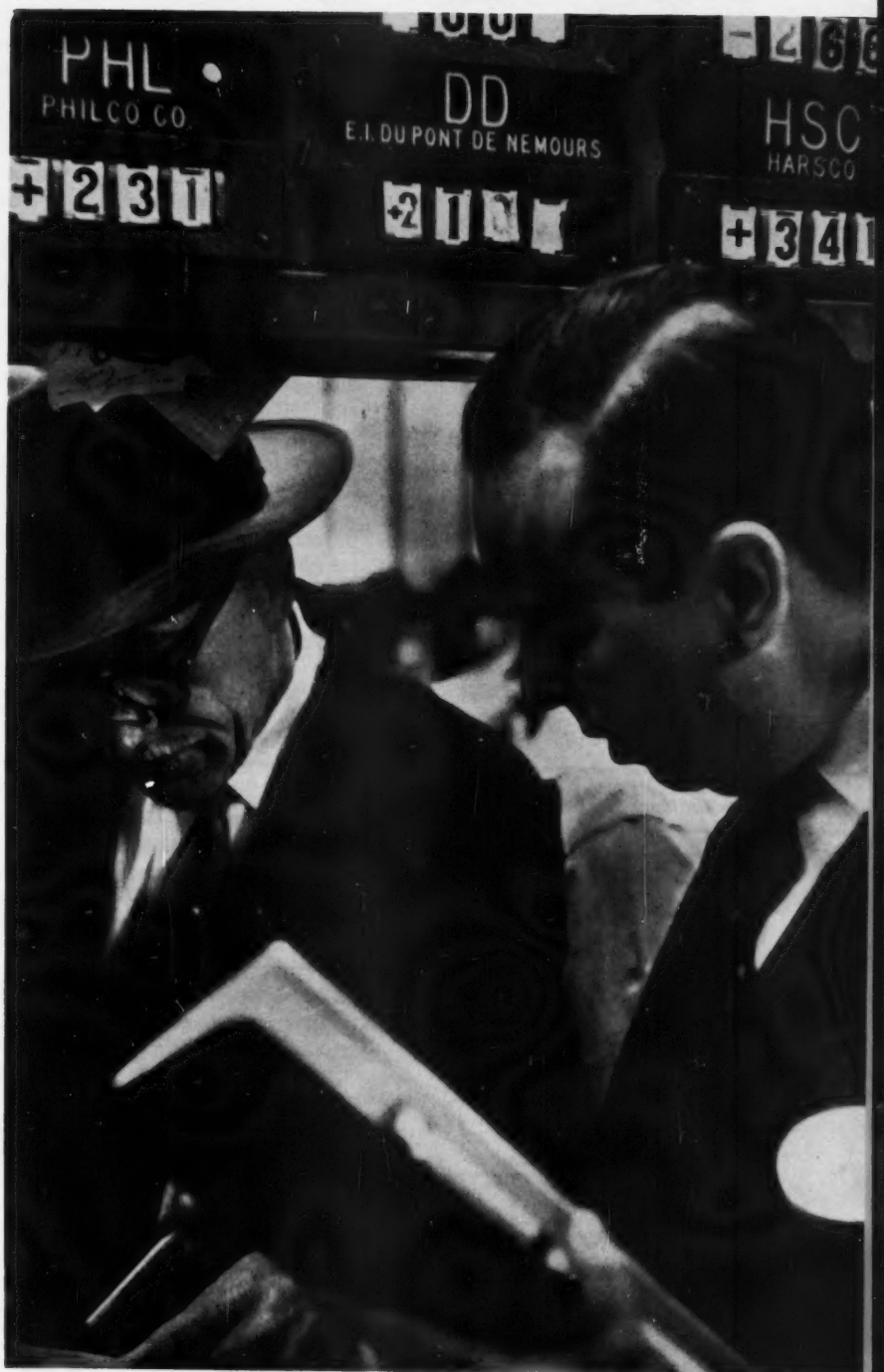
The certainty of this proposition was attested to on the floor of the New York Stock Exchange last week (*photo, right*). Investor-buying the rest of the week kept the price of Du Pont common stock within 9.9% of its May 22 opening, despite the U.S. Supreme Court's decision at noon Monday that Du Pont must dispose of its holding of 63 million shares of General Motors common stock within about 10 years (*CW Business Newsletter, May 27*).

That bloc — with current market value of more than $2.8 billion—has yielded dividends of $126 million/-year for the past six years; and Du Pont has passed those dividends (minus some $10 million for taxes) along to its own stockholders. Thus GM revenues accounted for 37.5% of last year's $6.75/share cash dividend payments to holders of Du Pont common stock.

Confidence on the Street: Nevertheless, financial analysts and investors still feel that Du Pont and its securities are safe and sound. In continuing to rate Du Pont common stock a good buy at more than $200/share, they are registering their confidence that:

(1) Domestic and foreign chemical operations will be unaffected by the divestiture. Despite the recession and profit squeeze, the company last year netted $248.8 million on chemical sales of $2,142.6 million, for a profit margin of 11.6%.

(2) Du Pont's $200-million/year capital investment program, its in-



CW PHOTO—JOAN SYDLOW

At the 'Big Board,' specialist finds Du Pont holding up at $210.

vestments in other companies (aside from GM), and its generally strong financial position (no indebtedness, and more than $700 million in working capital) also are not endangered.

(3) More than 200,000 Du Pont stockholders—by some still unknown means — will be spared from being greatly hurt by the divestiture—if they don't panic.

Hope in Congress: Main hope for Du Pont stockholders as of now is that the U.S. Congress now will start to move on a bill sponsored by Sen. John J. Williams (R., Del.), and that the Kennedy Administration will give that bill its blessing.

This bill—favored by Du Pont, and approved in principle by the Eisenhower Administration—would extend to antitrust divestiture situations the same tax policies already in effect for involuntary distributions to stockholders of public utilities and bank holding companies.

Under that bill (if enacted), Du Pont could pass out to its common stockholders the 63 million GM shares over the 10-year period, in addition to cash dividends; and there would be no federal income tax liability for the GM stock. The capital gains tax would apply if a stockholder subsequently sold any of his newly acquired GM shares.

Under present tax laws, the stockholders would have to pay regular income tax rates (20-91%, depending on income bracket) on the full market value of the GM shares at the time of distribution. Du Pont estimates that such taxes against individual Du Pont stockholders "could well exceed $1 billion."

What Alternative? Brainstorming to devise other ways in which Du Pont could comply with the court order without incurring heavy taxes or breaking the market for GM stock was on the way to becoming a national pastime last week; but so far serious flaws have been spotted in every scheme proposed (*table, below*).

If Du Pont were to sell the huge bloc of stock on the open market—either in a series of large offerings or in daily trading—the price of GM stock would tend to fall; the magnitude of the drop has been estimated at 10-40%.

Thus Du Pont would probably not be able to sell the stock for anything like its May 19 market value of more than $3 billion; it would have to pay possibly $600 million in capital gains tax on the difference between the selling price and the very low cost of acquisition (average purchase price: only $2.09/share); and if proceeds were invested in new chemical ventures, any profits would be subject to regular corporate income tax rates (now 52%) compared with the much lower tax rate on dividends (currently 7.8%).

Capital for Chemicals: By selling the GM stock, or by distributing it to Du Pont stockholders in lieu of all or part of the customary cash dividends, Du Pont would acquire additional capital that could be invested in new chemical plants or used for purchase of stock in other chemical companies.

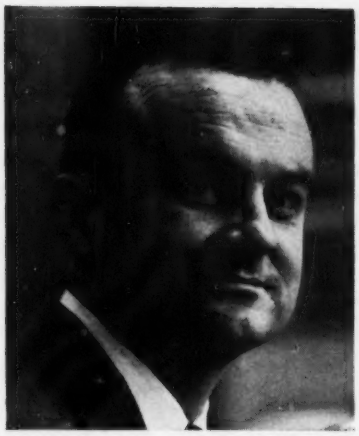
But it's likely that many Du Pont stockholders have invested in Du Pont because they need the cash dividend income.

And in the 1959 hearing in the federal district court at Chicago, Judge Walter J. LaBuy noted one possible objection to any plan that would generate substantially more capital for Du Pont: The court, he indicated, would be unwilling to frame a decree "that seems certain to enhance the power and position of the Du Pont company and perhaps create new antitrust problems."

Conflict in the Court: The Supreme Court decision — written by Justice William J. Brennan, Jr., with Chief Justice Warren and Justices Black and Douglas concurring—may encourage the Justice Dept. to go after other

How Divestiture Might Come—And What It Could Mean

MEANS OF DIVESTITURE	EFFECTS ON DU PONT'S CHEMICAL OPERATIONS	EFFECTS ON DU PONT STOCKHOLDERS	EFFECTS ON STOCKS OF DU PONT AND GM
1. By selling the GM stock in large offerings or in daily trading	Du Pont could net possibly $1-2 billion for reserves and new investments	Gain: possible benefits from new investments; loss: equity and regular dividends on GM stock	Price of GM stock could be significantly depressed
2. By distributing the GM stock to Du Pont stockholders			
. . . in addition to regular cash dividends	No direct effect	Gain: direct title to GM stock, with dividend and voting rights; loss: possibly $1 billion in additional tax payments	Price of GM stock would probably drop; if Williams bill is passed, price of Du Pont stock might rise, then drop below present level
. . . in place of all or part of regular cash dividends	Du Pont could retain from earnings up to $3 billion during 10-year period for reserves and investments	Gain: direct title to some GM shares; loss: some cash income	Prices of both GM and Du Pont stock would drop
3. By exchanging the GM stock for Du Pont preferred and common stock	No direct effect	Transaction might be held taxable; some Du Pont shareholders would be unable or unwilling to make the exchange	Price of GM stock would decline; price of Du Pont stock—with decrease in number of shares outstanding—might not be hurt



Justice Dept.'s Reycraft: Wins big point, may go easy on details.

companies whose stock holdings might be viewed as at least potentially tending toward monopoly.

Brennan wrote that the plan approved by the district court—in which Du Pont would retain title to the 63 million GM shares, but would pass voting rights on to Du Pont stockholders—was not adequate. The only effective remedy, he held, would be complete divestiture; economic effects on stockholders, he added, can be considered only when the court has a choice of effective remedies.

In a sharply worded dissent, Justice Felix Frankfurter insisted that the "pass-through" plan would have proved effective; and that in any case Judge LaBuy had planned to retain jurisdiction of the case to make sure that his decree would be carried out properly.

Questions Pending: While Brennan's decision clears up the central question about divestiture, it leaves many subsidiary questions unanswered. How will Du Pont go about the monumental task of unloading so much stock? What will the court and the Justice Dept. regard as "complete" divestiture — this particularly with reference to Christiana Securities, in which various members of the Du Pont family have large investments and which, as owner of 29.3% of outstanding Du Pont common stock, might receive up to 18.5 million of the 63 million GM shares? Will Congress amend the tax law before the decree is hammered out; and if not, who will bear the tax burden?

Brennan said this "already protracted litigation" (it was filed in 1949) should be wound up as quickly as possible. Under the schedule he outlined, Judge LaBuy—probably about July 1—will notify Du Pont to submit its divestiture proposal within 60 days. Thereafter, the Justice Dept. will have 30 days in which to comment on the Du Pont plan or suggest a different scheme. Then a hearing will be held in Chicago, probably before Thanksgiving Day, with George D. Reycraft and Hugh B. Cox again leading the teams of lawyers for the government and Du Pont, respectively. If there's disagreement, still another appeal to the Supreme Court might follow.

As soon as a final decree goes into effect, Du Pont will get 90 days in which to start its divestiture and 10 years in which to complete the job. It's conceivable that agreement might come smoothly; the Justice Dept., one of its attorneys remarked, doesn't care how Du Pont gets rid of the stock, so long as the divestiture is "complete and effective."

Right now, interest centers on what Congress will do. The tax relief bill advocated by Sen. Williams is pending before the House Ways and Means Committee; but members seem to feel that no action should be taken until the District Court comes up with a specific divestiture plan.

This would appear to make for agonizing uncertainty on all sides—particularly for Du Pont and GM stockholders. But the outlook for relief is favorable. "I don't think there's any doubt Congress will do something to alleviate the situation," a Joint Committee on Internal Revenue staff member told CHEMICAL WEEK late last week.

EEC Turning Point

The thriving European Economic Community — in which many U.S. chemical companies have set up shop over the past few years—is approaching two major decisions.

One momentous decision likely to be required: How to handle Britain's anticipated application to join EEC.

The other big question—less critical —is whether EEC's Council of Ministers will approve the recommendation made last week to continue the organization's accelerated schedule and lop an extra 10% off tariff rates at the end of this year. If the answer is yes — as seems likely — it would put EEC four years ahead of its present timetable for reduction of internal tariffs on trade among its six member nations (France, West Germany, Italy, Belgium, Netherlands, Luxemburg.

Major Shakeup: How these problems are resolved will have far-reaching effect on the future of EEC—and on the chemical and other industries that have been growing at a rapid pace within the Common Market.

The possibility that Britain may join the EEC—after trying to cope with EEC competition — overshadows any progress, however spectacular, that the Six have made toward hitting their economic targets.

Experts in the Common Market have no doubt that British entry would radically change the trade bloc. Optimists insist that enlargement of EEC by Britain, plus Denmark and Norway, which are expected to follow, would give the community new impetus toward becoming a real force for European economic and even political unity.

But more cautious observers point out that the problem is to enlarge the EEC without weakening it. Britain's entry, they say, is bound to put greater limits on the Community. The result they see is a low-tariff customs union with limited economic coordination.

Good Prognosis: But both optimists and pessimists agree that with or without new members, EEC will reach its goal of complete free trade—unless economic upheavals in Europe come along to stop it.

Meanwhile, Britain is now in the process of taking the plunge. Its bid will probably be made by summer or early fall. First, the government wants assurance from EEC that its terms would be accepted, with satisfactory provisions made for the three big problems involved: (1) protection of the trade interests of its Commonwealth partners and (2) its partners in EFTA, and (3) accommodation of its agricultural support policies.

There is stiil opposition within Britain to joining the Common Market, but positive sentiment is stronger. Last week, for example, a "Common Market Campaign," backed by 100 influential sponsors, was kicked off. The chemical industry is strongly in favor of joining. Export volume to the Six evidently hasn't been hurt so far, but absorbing the tariff differentials has put the squeeze on profits.

Columbia Cellulose's Beaupre: Just adhering to Canadian policy.

Cuban Gate Ajar

The U.S. Government's embargo on Cuban trade has developed leaks, but the State Dept., though concerned, plans no direct action. Case in point: the Canadian affiliate of a U.S. company has just shipped $770,000 worth of pulp to Castro's Cuba.

And another chemical shipment to Cuba was made by the U.S. Government itself: More than 264,000 cu. ft. of strategically short helium, worth about $8,000, will go there, to be used in weather balloons. Caribbean weather data will in turn be relayed to the U.S.

The pulp, part of a $1.25-million shipment loaded at Prince Rupert, B.C., was sold by Columbia Cellulose Co. (Vancouver, B.C.). Columbia is a Canadian corporation (President T. N. Beaupre is a Canadian) with most of its shares owned by Canadian interests. The principal shareholder, however, is Chemcell Ltd. (Montreal), which in turn is controlled by Celanese Corp. (New York).

"I don't know how much control Celanese could exert," says Ian Barclay, secretary of Columbia Cellulose. " . . . I just can't conceive of them stepping in to change our sales pattern . . . In shipping to Cuba we are just adhering to Canadian government policy the same as the others who are shipping pulp there."

The rest of the latest 9,000-ton shipment was supplied by MacMillan Bloedel and Powell River Co. (Port Alberni, B.C.).

The Canadian government does not frown on trade with Cuba, but is cooperating with the U.S. government in stopping transshipments bound for forbidden lands through Canada. Recession-pinched Ottawa is actually suggesting that even more business than usual with Cuba would be acceptable while Cuban cash holds out.

The State Dept. has not asked U.S. companies to halt the Cuban trade of their Canadian subsidiaries; it fears such action would inflame already touchy Canadians, who resent anything that hints of U.S. dominance.

Foreign subsidiaries would not be a loophole for companies wanting to trade with other embargoed countries. The Cuban boycott comes under the Export Control Act, which does not restrict subsidiaries in foreign countries. Trade with Red China, on the other hand, is forbidden by the Trading with the Enemy Act, which gives the administration broad powers to prevent sales to an enemy country by U.S.-controlled companies, at home or abroad. Washington officials have considered putting Cuba in this classification, but haven't so far, mainly to avoid complications with friendly governments, such as Canada.

Teaming Up to Trubek

Universal Oil Products (Des Plaines, Ill.) is expanding in chemicals, adding to its line of antiozonants for rubber. The company—joining forces with its wholly-owned subsidiary, Trubek Laboratories—last week started building a new intermediates plant at Trubek's East Rutherford, N.J., site.

Trubek produces intermediates for the two additives Universal already has on the market to prevent ozone attack on both synthetic and natural rubbers. The new facilities, to cost $250,000, are due onstream this fall.

UOP President M. P. Venema, who took part in ground-breaking ceremonies last week, would not specify the composition of the new intermediates, but said Universal would convert the plant's entire output into a new anti-ozone product for types of rubber not protected by UOP's present additives.

The plant is the first joint project of the two companies since UOP acquired Trubek's voting stock in April.

Stockholders' Target

Fifteen stockholders (owning 530 of the 736,761 shares outstanding) have brought suit against Virginia-Carolina Chemical (Richmond, Va.), charging fraud. The suing stockholders, suspicious of a recent series of deals involving $11 million worth of Florida phosphate land, ask for an auditing and invalidation of these deals.

They're also asking the chancery court at Nashville, Tenn., to invalidate a corporate bylaw that, they allege, "removes the legal protection to stockholders against acts of officers and directors of a corporation and encourages covering up attempts to remove any guilt that may have existed."

The land in question was bought two years ago by Kentucky Store and Land Co., which is controlled by Justin Potter, president and chairman of the board of V-C. The land was then leased to V-C, which mined phosphate from it, paying royalties. In '60, V-C bought it for more than $6 million (about the difference between royalties paid and the $11 million).

Potter says he and the Kentucky company were simply helping out. V-C needed the phosphate for its fertilizer business, didn't have — and couldn't borrow—the money to buy it. He says his only profit was a 6% interest (about $26,000) on his share of the investment.

V-C's Potter: Under fire for phosphate land financing deal.

national roundup

Rounding out the week's domestic news.

Companies

Thiokol Chemical Corp. (Bristol, Pa.) has received a multimillion-dollar subcontract from Boeing Airplane Co. (Seattle, Wash.) to design and develop a solid-fueled rocket for the Air Force's Dyna-Soar manned space glider. The rocket will give an added thrust to the glider after the second stage of its Titan booster burns out, and also serve as an escape rocket, hurling the glider and pilot free if an emergency develops during launch.

In another move, Thiokol signed an agreement under which it can acquire 85-95% of Shawnee Industries (Shawnee, Okla.) in exchange for Thiokol stock. Shawnee was formed early this year to buy properties of Jonco Aircraft, subsidiary of Fairchild Engines & Airplane Corp. Thiokol also acquired from Jonco equipment for sheetmetal forming, welding and machining of airplane subassemblies.

Kaiser Aluminum & Chemical Corp. (Oakland, Calif.) and Kawneer Co. (Niles, Mich.) have abandoned merger plans. The two had hoped to combine in the field of architectural metals, but the Dept. of Justice filed an antitrust suit in St. Louis, blocking the action.

Harvey Aluminum (Torrance, Calif.) has declared a 20% increase in its quarterly dividends on Class A common stock. This raises dividends to 30¢/share from the 25¢ Harvey had paid since becoming publicly owned last June. Harvey is planning a stock offering to help finance its expansion and integration program (*CW, May 27, p. 25*).

Federal Laboratories (Saltsburg, Pa.), subsidiary of Breeze Corp. (Union, N.J.), has received a total of more than $1 million in contracts from the U.S. Army Chemical Corps and various federal and local law-enforcement agencies for large-scale production of a new, more potent type of tear gas.

Expansion

Detergents: Procter & Gamble (Cincinnati) plans to build a multimillion-dollar synthetic detergents plant in Augusta, Ga., starting this fall. The plant, expected onstream early in '63, will produce P&G's packaged household detergents and will become warehousing and distribution point for shipments of the company's soap products, toilet goods and foodstuffs.

Petrochemicals: Goliad Corp. (Houston) has awarded a more than $1-million contract to Olsen Co. (Houston) to construct additional facilities at Goliad's plant in Lavaca County, near Sheridan, Tex. New facilities, due onstream in October, will boost the plant's output to 255 million cu. ft./day, provide for recovery of an unspecified ethane product and substantially increase the recovery of propane.

Butadiene: Polymer Corp. (Sarnia, Ont.) has awarded Fluor Corp. of Canada a $1.5-million contract to build a butadiene extractor in Sarnia by this fall.

Aluminum: The cast house of Reynolds Metals' alloys plant at Sheffield, Ala., is being expanded at a cost of about $2.5 million. Two new holding furnaces (capacity: 80,000 lbs.) will be teamed with two new 100,000-lbs.-capacity melting furnaces.

foreign roundup

Rounding out the week's international news.

Petrochemicals/Japan: California Chemical Co. (San Francisco), subsidiary of Standard Oil of California, is licensing its new lube oil additive and alkyl phenol technology to Karonite Chemical Co., a new company owned by Calchem (45%), Kao Soap Co. (45%) and Nomura Jimusho (10%). Karonite will put a $2-million plant onstream at Kawasaki, near Tokyo, next year. Yearly capacity: 2 million gal. of finished lube oil additives; 500,000 gal. of alkyl phenols.

Also, Phillips Petroleum (Bartlesville, Okla.) has signed a *cis*-polybutadiene synthetic rubber licensing agreement with the major Japanese rubber producer, Bridgestone Tire Co., which will build a 10,000-tons/year plant.

Petrochemicals/Portugal: Sacor (Lisbon), a refining and distributing company, will erect a new petroleum refinery (crude capacity: 1 million metric tons/year) at Oporto. The complete unit will have facilities for distillation, reforming, catalytic cracking and desulfurization.

Synthetic Fibers/Japan: Nippon Rayon (Tokyo) and Inventa Co. (Switzerland) have agreed to build a plant to manufacture 20 tons/day of polyether-polyester fiber by year's end.

Plastics/England: Mobil Chemical Co., division of Socony Mobil Oil Co. (New York), has offered to buy all outstanding shares of O. & M. Kleeman, Ltd., a British plastics firm.

Test tube on the left contains a mixture of polyvinyl acetate and hydrocarbon resin which have been hot melted together. They are obviously highly incompatible.

Test tube on the right contains the same incompatible mix, except that a quantity of Nevillac was added to the melt. They are now clearly compatible.

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Washington
Newsletter

CHEMICAL WEEK
June 3, 1961

Producers of chemical rocket boosters for space use, both liquid and solids, will get huge new contracts now that President Kennedy has officially put the U.S. into the space race with Russia. Kennedy made it clear in his dramatic message to Congress last week that the U.S. now is openly in such a race—costly as it may be.

The extra $679 million that Kennedy requested as an addition to the $2.4 billion already budgeted for the civilian and military space programs in fiscal '62 (starting July 1) is just the beginning of a long program of spending for space research and development. Chances are excellent that Congress will give him everything he wants.

The new money augurs big contracts to accelerate such space boosters as the liquid-fueled Saturn and F-1 engine. Solid-fuel rocket development also will be stepped up. These are the general areas in technology into which the U.S. now must pump money if it is to catch up with the major rocket boosters already available to the Russians.

Other programs—e.g., communication and weather satellites—also will require more boosters to launch them into orbit. This, too, is only the beginning of a sharply accelerated program.

Within the next few years the annual space budget will likely expand to $5-10-billion—and the chemical industry doubtless will receive a substantial share of this.

•

Stockpiling of food and medicine will be required as part of the President's reactivated civil defense program. In his message to Congress he hit hard at public "apathy" and "indifference" but said that many of the civil defense plans proposed so far have not gained public support because they are too "far-reaching or unrealistic."

To begin with, Kennedy is reorganizing the Office of Civil Defense Mobilization into a small staff agency to be known as the "Office of Emergency Planning." This agency will help him devise a program providing for federal funds for indentifying fallout shelter capacity in existing structures and money for new shelters in federal, state, local and private buildings.

Kennedy wants to increase the civil defense budget for fiscal '62 from the present $104.2 million to more than $300 million. This, he says, "will increase sharply in subsequent years." Until the new Office of Emergency Planning gets into operation, there is no way of knowing how much of this money would go for the stockpiling of food and drugs.

•

A program to protect workers from automation job problems also was mentioned by Kennedy in his message. The President said he will transmit to Congress a program to train or "retrain several hundred thousand workers over a four-year period, to replace those skills made

obsolete by automation and industrial change with new skills which new processes demand."

The President's proposals undoubtedly will be based on a four-point program drawn up by the Labor Dept.'s 24-member Public Advisory Committee on Automation. That group came up with these recommendations: (1) set up an expanded information program for advance warning on automation layoffs; (2) ease the impact of automation by retraining and relocation of workers; (3) train workers in advance to operate new machines; (4) establish regional clearing houses to spread information on automation.

•

The government's antidiscrimination pact with Lockheed Aircraft Co. could have wide repercussions in the chemical process industries in the South. The President's Committee on Equal Employment Opportunity, headed by Vice-President Lyndon B. Johnson, plans to use it as a lever to "persuade" other government contractors to agree to similar action.

The general feeling in Washington is that if an antidiscrimination agreement can be enforced at Lockheed's plant in Marietta, Ga., it can be enforced anywhere. The Johnson committee concentrated on Lockheed because Lockheed has a big new contract with the government that is still cancellable, at least in theory. This was the wedge, though officials would never admit it publicly.

Result: Lockheed has agreed to maintain nonsegregated facilities in all nine of its plants, including its eating and recreation facilities. Even more important in the eyes of committee members, a Negro will get into the apprenticeship program so that he can move into a skilled, higher-paying job.

•

President Kennedy's controversial tax-credit proposal has no chance of passage this year. The plan stirred a hornet's nest in hearings before the House Ways & Means Committee. All but three or four witnesses objected to Kennedy's plan to spur investment in new plant and equipment. Most industry witnesses agreed that what really is needed is a further liberalization of depreciation allowances—and nothing more.

A majority of committee members also favors a straight liberalization of depreciation allowances. Some kind of incentive bill may come out of the committee—and may even get through the House—this year. But it will die, because with time running out, the Senate probably will not even take up the matter. Chairman Harry F. Byrd (D., Va.) of the Senate Finance Committee would not be unhappy if the entire bundle of tax proposals is held over until next year.

•

Tighter regulation of private motor carriers of hazardous chemicals is being considered by the Interstate Commerce Commission. Many CPI firms—which would be affected by such a move—oppose it on grounds that it's the "illegal for-hire" truckers who most need tighter regulation.

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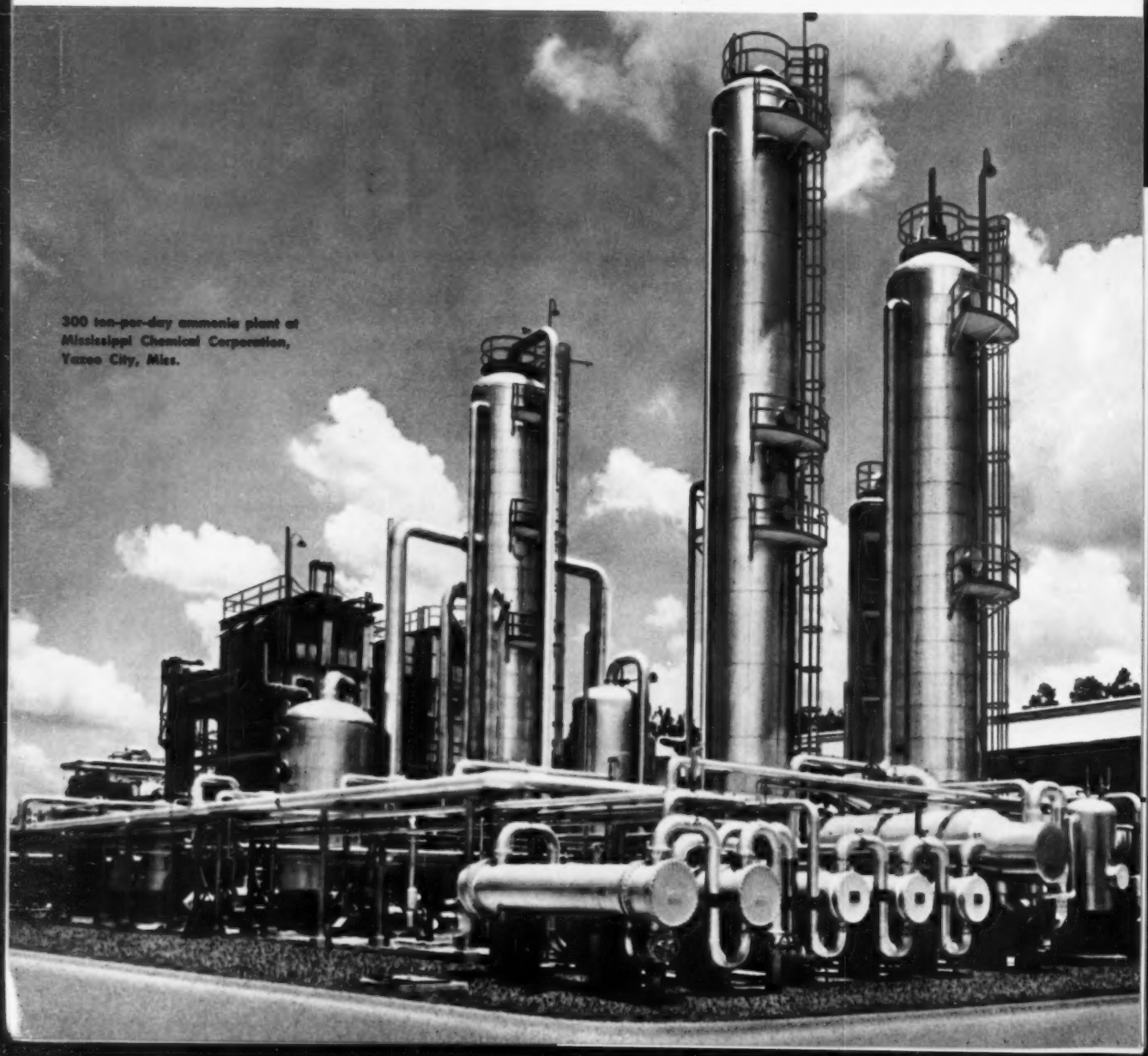
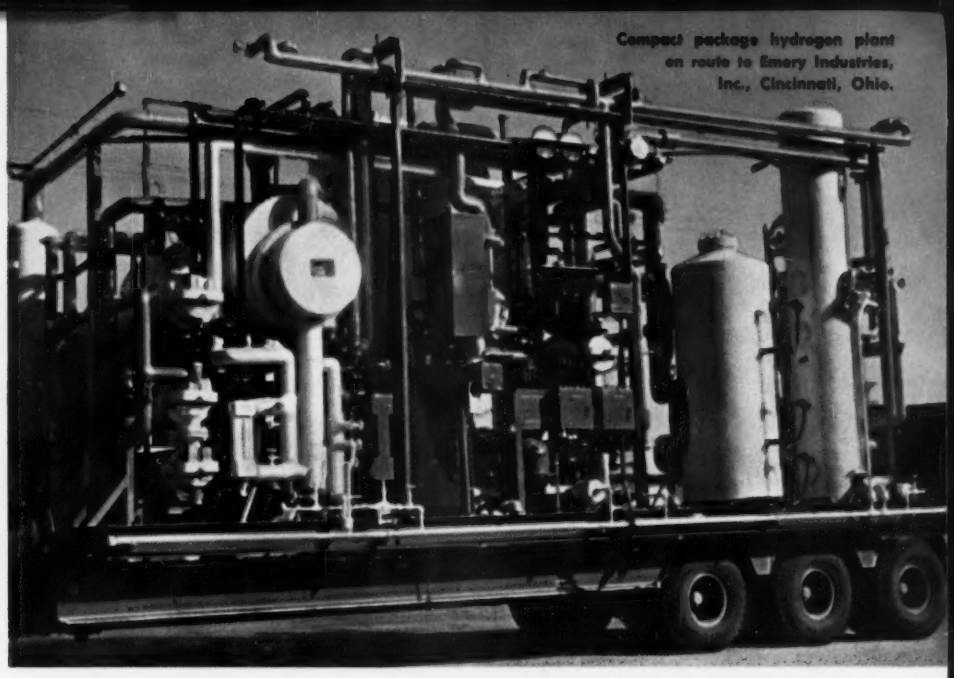


300 ton-per-day ammonia plant at Mississippi Chemical Corporation, Yazoo City, Miss.

small



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CW PHOTOS—JOAN SYDLOW

Ten Eyck (left) and Stanton have put Interore into top rank.

Zestful Chemical Traders

In India last week a young U.S. executive was negotiating a barter deal involving substantial tonnage of fertilizer. If the deal goes through, several fertilizer producers will get hefty contracts, and the executive's company, International Ore & Fertilizer Corp. (Interore), will turn a handsome profit—provided it has correctly judged some critical variables.

The Indian deal on which Interore Vice-President Ronald Stanton was working is a good example of the nimble market maneuvering by which Interore in just 13 years has made itself the biggest fertilizer export house in the U.S.

With about 45 employees in the U.S. and 110 abroad, Interore's varied dealings—reselling, shipping, chartering, etc.—last year grossed $70 million. The company accounted for about one-third of total Florida phosphate rock exports (about 45% of its business), handled substantial quantities of nitrogenous materials, complex fertilizers and sulfur—all bulk chemicals in the "commodity" class.

Taking the Risk: Fertilizer producers turn their export sales over to dealers like Interore because of the specialized nature of the business. Many producers aren't set up to do any selling abroad. But even chemical companies with extensive overseas sales operations—Allied, for example—find it often makes more sense to let a merchant handle the fertilizer exports.

The profit margin is extremely tight, compared with regular chemical sales (Interore's pretax profits are around 0.6%). And because fertilizer is such a high-volume, low-unit-cost commodity, its shipping costs are critical, often make the difference between getting and losing a sale, or profit and loss.

With their large volume and varied sources of supply, big merchants such as Interore can consolidate shipments, arrange charters, and otherwise cut costs in ways producers can't.

Commodity Complications: Other complications in commodity trading, besides freight costs, prompt producers to turn over exports to the professionals. Because many of the countries that are short on fertilizer are also short on foreign exchange, barter and clearing account deals are sometimes essential to the completion of a sale. This is an area in which Interore has been more active than most other U.S. export houses, although the practice is relatively common among European exporters.

Bartering and clearing account operations had a surge after World War II, then slacked off as foreign exchange reserves fattened. Now—according to Interore—bartering is again becoming important for two reasons: (1) developing nations, with small reserves, are trying to buy goods; (2) the Communist bloc is active in promoting tied trading.

This kind of dealing can be especially tricky and hazardous and most producers aren't set up for it. The usual trading risks are compounded by the long negotiating periods, the number of commodities involved, and —with clearing account deals—the shifts of currency values.

The importance of barter transactions to Interore has varied widely. Last year they accounted for 10-15% of sales. In some years they have run as high as 50%. If two deals now being negotiated go through, they alone would equal more than half of Interore's total volume in '60.

Barters can take a lot of time and patience. Interore has negotiated deals for as long as nine months, only to see them fall through. They involve dealing with governments, breaking into markets with the bartered commodity, running the risk of getting stuck with a load of materials if someone backs down.

Doris Robison rose from secretary to head the phosphate rock operation.

Interore's last deal involved shipping Indian iron ore to Italy in exchange for fertilizer. Often, barters are three-way affairs. In one deal, for example, Interore shipped grain to Germany in exchange for fertilizer, which it shipped to Pakistan for wool, which Interore sold in the U.S.

Long-Range Selling: Tricky trading isn't the only secret to Interore's success. It probably has the most extensive market development program of all the trading companies. Right now, major buyers of Interore's rock phosphate materials are in Europe and Japan. But it has a program, unmatched by other U.S. fertilizer merchants, to spur fertilizer consumption in South East Asia. This area, Interore feels, has a greater potential for U.S. fertilizer producers than Latin America, where European competition has the advantage of better freight rates.

The company's most extensive effort so far is in India, where it has set up two programs to push nitrogenous and phosphatic fertilizer consumption. Both are set up as nonprofit corporations with Interore's suppliers, and aim to sell both government officials and farmers on using the material.

After persuading the national and state governments to purchase the material, President Hugh Ten Eyck points out, it's important to see that it is handled and used correctly, "to protect the product's reputation." This means having a man on the spot to watch the unloading from the ship, checking on proper storage, demonstrating proper use, backing up the efforts of the government field agronomists.

The nitrogen program was set up four years ago with Interore's four European calcium ammonium nitrate suppliers—Austria's Stickstoffwerke, Germany's Ruhr-Stickstoff and Hoechst, and Norsk Hydro-Electrisk. They pay the costs—less than $100,000 so far—while Interore provides the services of its local offices. The program employs 50-60 Indians, including agronomists. Its success is reflected in Interore's calcium ammonium nitrate sales to India—up from 5,000 tons four years ago to an estimated 250,000 tons in '61.

The phosphatic program is backed by eight U.S. suppliers*, which share the costs 50-50 with Interore. This was set up only about a year ago, is less developed than the nitrogen program. At this stage it's limited largely to gathering statistical material and quietly selling government officials on using triple superphosphate. At the beginning of this year it sent U.S. agronomist Vincent Sauchelli on a five-month tour of India as a consultant.

The government plans on single superphosphate consumption hitting 400,000 tons by '66, and hopes to supply it with local production. But the local capacity has far outdistanced consumption for now. As a result, Ten Eyck says, producers are afraid to build more and will end up short of the consumption target by 250,000 tons.

Through the program—called "Phoscheme"—Interore is trying to sell the Indian government on buying triple superphosphate to make up the gap which will open in two or three years. The main problem is getting the government to look beyond the present period of overcapacity.

In Korea, Interore has been working to change the consumption pattern from reliance on nitrogenous fertilizers to use of combination materials. It's trying now to show the advantages of phosphate; ultimately, it hopes to sell potash, in a balanced fertilizer. Unlike the more elaborate Indian campaign, selling in Korea is limited to the co-ops, importers, local dealers, and the government, not the farmers themselves.

Seeding Growth: Interore's latest promotion scheme is the International Fertilizer Development Corp., formed a few months ago to advise customers on the technical and economic problems of setting up foreign plants. Problems include locating engineering firms, getting loans, etc. The idea is that this will eventually boost sales by promoting raw material consumption by its customers—directly, by helping them build fertilizer plants, or indirectly, by helping them build other kinds of plants, boosting their business and their goodwill.

Ten Eyck isn't sure at this point in which directions the new project will grow. It's already promoting a phosphoric acid process for Nissan Chemical Industries (*CW, April 22, p. 85*). Eventually, it may represent engineering firms abroad.

Major Outlet: With the exception of sulfur, Interore's U.S. trade is almost all in exports. "We're not set up for imports," Ten Eyck explains.

Ronald Stanton went from college to Interore, guides trading operations.

* American Cyanamid, Armour, Davison, Swift, U.S. Phosphoric Products, IMC, Virginia-Carolina Chemical, F.S. Royster Guano.

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Breakdown of Interore's 1960 Sales

	Metric Tons
Florida phosphate rock	1,250,000
Nitrogenous fertilizers	750,000
Potash	140,000
Finished complex fertilizers	308,000
Sulfur	224,000
Miscellaneous	128,000
Total	**2,800,000**

"Besides, I don't think imports and exports mix. It would mean competing with our own suppliers."

The sulfur business is an exception to the rule. Interore's sulfur all comes from Mexico. It was in a good position to get the business because of its shipping advantage and relations with the U.S. sulfur consumers, which are also its fertilizer suppliers.

As a favor to customers and suppliers, Interore also handles imports and exports of small amounts of odds and ends, ranging from metals to sesame seed.

The company handles exports on a nonexclusive basis for seven of the eight Florida phosphate rock producers, and for fertilizer producers —e.g., American Cyanamid, Armour, W. R. Grace's Davison Chemical, Swift, Allied, and Potash Co. of America.

About $8-10 million of its business is done entirely outside the U.S. —including about half of its nitrogenous fertilizer sales.

Its relationships with its suppliers vary. With Allied, for example, it has a contract to act as its sales representative for virtually all of its ammonium sulfate exports outside of the Western Hemisphere. But with other producers, Interore is often in competition for export sales, handles their material on a spot basis.

Interore acts as a kind of combination merchant-distributor. In all of its sales, it actually purchases the material from the supplier, then resells it abroad. But, unlike a pure broker, Interore (and most fertilizer export houses) does not speculate on the commodity price, but works on an agreed commission.

It doesn't keep an inventory. At the beginning of each year, Interore informs its suppliers of the demand outlook. But no commitments are made until a specific deal comes up. Then Interore goes to the supplier and negotiates a purchase, if the material is available.

Up from Scratch: Interore has been quick to acquire its present know-how: none of its three top executives had any direct export experience before Interore was established in '48. At that time, it was set up to deal in fertilizer materials by the owners of Continental Ore., a trading company.

Ten Eyck was hired to run the new operation as a separate company. A metallurgical engineer by training, he was general manager of Southern Phosphate Corp.

Stanton joined the company in '49, right out of college. As vice-president, he now heads all the trading operations.

That same year, Ten Eyck hired Doris Robison as his secretary. She is now manager of the Phosphate Rock Corp.—the division handling the phosphate rock business.

Interore's first deal was based on working out a way to supply German potash to Japan, for the account of the U.S. government.

Then, as Florida phosphate became available in '49 and '50, Interore started to export it, building the foundation of its business.

Ten Eyck depends heavily on Interore's 20 overseas offices, which are set up as "affiliates." These are in the major markets. Independent agents represent Interore elsewhere.

Although the foreign offices have heavy responsibilities, Interore's home office executives are in close touch with them, often work with the large suppliers and customers themselves. In the process, they spend $30-35,000/-year on air travel, run up communications bills of $80-90,000/year.

It is to save themselves bills like this—as well as the problems of chasing after customers—that producers of chemical commodities employ Interore. And for Interore, such complications add zest to its operations.

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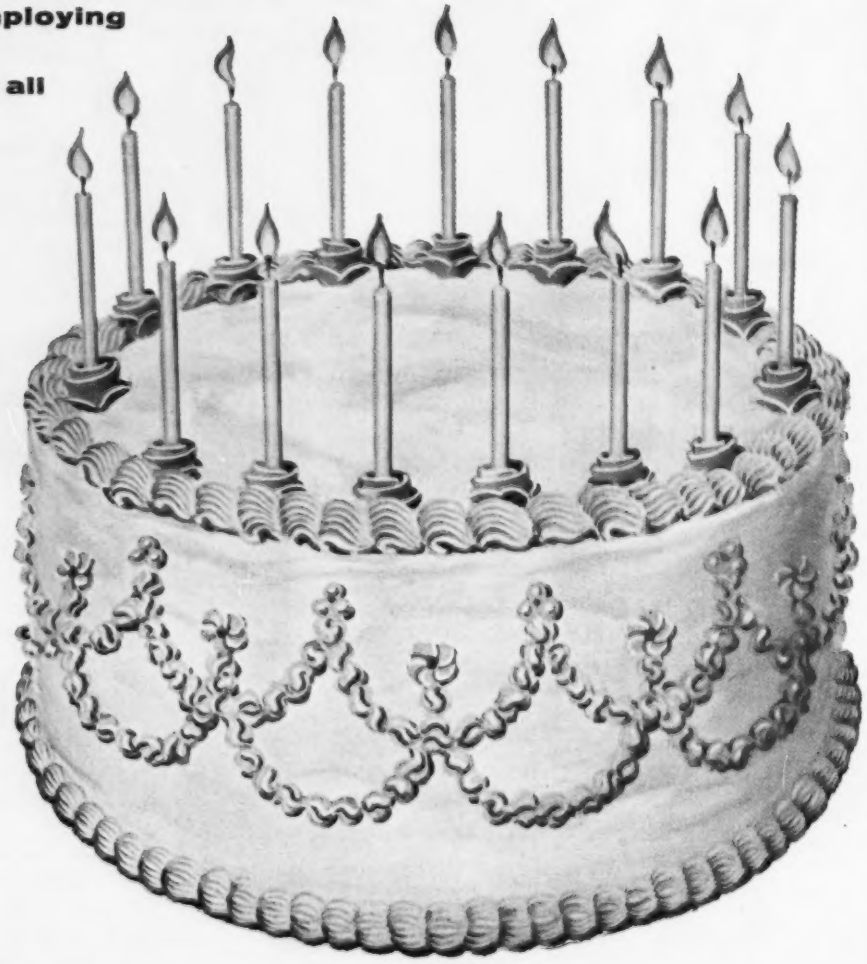

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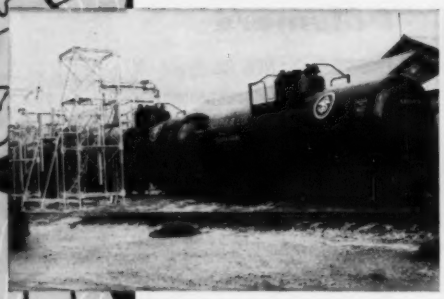

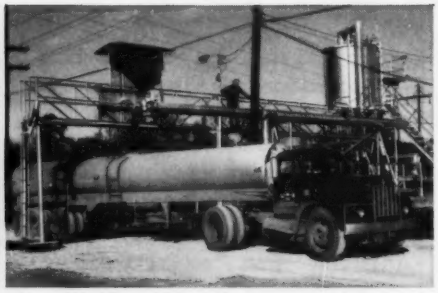

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CW PHOTO—W. ROSENBLUTH

Banking association's Kreider (left) pushes new employee service.

Boosting In-Plant Banking

In-plant banking is finding favor in CPI companies because it's free, safe and convenient.

CPI management is seizing on a new type of banking service for its employees — it requires none of the expense and responsibility of maintaining a credit union on plant premises, yet makes it easy for employees to handle personal financial transactions during working hours. A CHEMICAL WEEK survey of banks and CPI companies this week underscores the trend toward use of the new service.

Financial and administrative reasons are behind the switch. Although credit unions are run by employees, plant management is frequently required to foot the bill for office rental, mailing costs, and payroll deductions —costs that run up to $5,000/year or more. And management may have a moral, administrative, or even legal, responsibility for a credit union authorized to operate in company quarters.

Called in-plant or on-the-job services, the new procedure is now offered by about 300 banks (to all industries); it may be 600 within a year.

Who's with First? Nonexistent a few years ago, in-plant banking has spurted in acceptance this year and last. The First National Bank (St. Louis) started the plan last October, now serves 55 companies. Three Atlanta banks offer the plan to 400-500 companies out of a potential of 1,200 in the area. Clients of the First National Bank of Atlanta include, among others, American Cyanamid, Guardian Chemical, Norwich Pharmacal, McKesson & Robbins, Wyeth Laboratories (division of American Home Products), and Parke, Davis.

Some other in-plant bank service users and their banks: Neville Chemical, Pittsburgh Coke & Chemical, Mobay, Spectrochemical Laboratories, Allied's General Chemical Division (Pittsburgh National Bank); American Synthetic Rubber (First National Bank of Louisville); Union Carbide Research Center (National Bank of Westchester); and Sun Oil, Geophysical Service (division of Texas Instruments), Delhi-Taylor, and American Petrofina Oil (Republic National Bank of Dallas).

The First National City Bank of New York supplies in-plant service to seven chemical companies involving 2,000 employees. Probably the leader in the in-plant field is the Bank of America, which serves 1,526 firms having a total of 357,000 employees, but doesn't have this customer list classified by industrial category.

On the other hand, Harris Trust and Savings (the merged name of Harris Trust and Chicago National Bank) has just started in-plant banking and has only a few clients. Merchants National Bank of Indianapolis operates only in Marion County, Indiana, and its plan is barely two years old.

Nonetheless optimistic, Merchants Vice-President Willis Conner says, "We're still groping around a bit, but this is an attractive venture, with the future looking very bright. Fortunately, most people like to bank by mail." (Conversely, a spokesman for a Southern company that has installed in-plant banking notes: "I don't think anyone here is using the service. This type of thing has little if any value for us because most of our plant employees deal strictly in cash. They don't have bank accounts. They are paid every Friday—someone takes all the checks to a nearby bank branch —and returns in an hour with money for all. Also, a company employee goes to the bank branch every day at noon to make company deposits and, on this trip, is glad to do any banking that employees request.")

How It Works: Firms using in-plant banking simply install a rack, supplied by the bank, in a convenient plant or office location (often near the water-cooler). The rack includes deposit slips for both savings and checking accounts, loan applications, explanatory folders and preaddressed envelopes—all the essentials for common financial transactions. In a variation of this plan, the forms are kept by a responsible employee and distributed as needed. Employees and the bank handle transactions on a confidential basis, although the bank may check with an employer on a loan applicant's employment status and salary.

Banker's Pacesetter: A key man in

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the spread of in-plant banking is Lawrence E. Kreider, head of the in-plant program at the American Bankers Assn. (New York). Kreider has smilingly observed growth of the plan in the CPI ("Chemical workers are more affluent than some other types of employees," he says.)

Through Kreider, ABA supplies information on the plan to interested banks. However, the banks themselves handle details, forms, and promotional literature, according to their individual desires. The Bank of America, for example, has prepared a portfolio containing all the necessary forms for clients, including explanatory material for employers. Excerpt: "In accepting this program you are assuming no contractual obligations. You are not our agents, nor are you selling our bank services. You assume no liability for the payment of any employee obligation. The credit decisions are solely our own; therefore, it will not be our policy to ask you for assistance in the event a loan becomes troublesome."

The bank includes in the kit a suggested form letter to be distributed among employees over a company officer's signature. The letter states, "We have learned that some creditworthy employees are attracted to financial institutions charging higher than bank interest rates. This is partly due to the conflict of our working hours with banking hours." It further explains that negotiations have been completed with a branch of the Bank of America for an "Employee Loan

Employee tackles transactions without taking time off from his job.

and Deposit Service," gives further details of the plan, concludes with the clincher, "We feel this is an important added group benefit and hope it will further evidence our desire to meet your needs wherever possible."

Kreider cautions banks contemplating the service that on-the-job services have some drawbacks, too. Among them are the expense of selling the plan to industrial clients; that it often requires one or two years to attain enough business volume through the plan for the bank to show a profit; that although the plan appears simple, it may entail many related services; and that the plan may expose the bank to applications which are unacceptable as submitted but which must be handled "as effectively as with personal contact."

Credit Union Conflict: While in-plant banking is undoubtedly making inroads on credit unions (reversing a trend), some observers feel there is room for both banking methods.

An Atlanta banker tells CHEMICAL WEEK that while he knows of several firms that were considering establishing credit unions until they learned that on-the-job banking was available, he has not heard of any instances where credit unions were abolished as a result of the service.

The Credit Union National Assn. (Madison, Wis.) concedes that it has felt the impact of in-plant banking, points out that emphasis of the latter is on loans rather than thrift.

CUNA is stepping up a counteroffense, notes that it is hard to combat in-plant banking services since not all plans are the same. Also, banks are matching loan interest rates of the unions. (Commercial banks, limited to 3% interest on deposits by Federal Reserve edict, can't, on the other hand, match the higher—up to 6%—interest on deposits paid by some credit unions.) CUNA believes its most effective selling technique is to stress the fact that employees own their credit union and have a voice in it, whereas in-plant banking is an "outside" service profits of which are not plowed back for the employees.

Even CUNA admits it is more concerned with the future than with the present. In February, J. T. Baker Chemical Co. (Phillipsburg, N.J.) employees launched the 376th credit union among chemical manufacturers. And there are now more than 20,500

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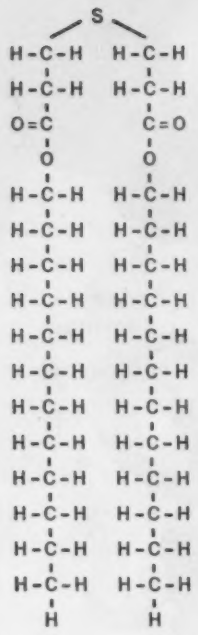

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Monsanto credit unions have displayed a growth considered typical of credit unions as a whole. Assets of some Monsanto credit unions (end of '54 vs. end of '60): $299,752 vs. $715,891 (Daymon Employees Federal Credit Union, Dayton, O.); $650,-354 vs. $1,896,674 (Monsanto Credit Union of St. Louis) $299,752 vs. $931,000 (Monsanto Employees Credit Union, Monsanto, Ill.); $117,077 vs. $358,992 (RSL Employees Federal Credit Union, Nitro, W. Va.); $47,-222 vs. $74,503 (Monsanto of Tennessee Credit Union, Monsanto, Tenn.); $870,291 vs. $2,158,400 (Monsanto Plastics Credit Union, Springfield, Mass.); $484,498 vs. $906,-794 (Merchemco Credit Union Everett, Mass.).

Banker's Tip: ABA foresees a greatly expanded use of the in-plant banking principle. Another recent version is "one-check-payroll services," in which pay is automatically credited to employees' bank accounts by mutual consent of employees, employer and banker. This system is said to provide a safe, convenient way of depositing pay for employees; a reduction in payroll processing costs and reduction or elimination of payroll deduction expense for employers; and a way for banks to better utilize their automated check-handling and bookkeeping equipment while paving the way to new banking business.

Banks offering in-plant services expect, of course, to show a profit on their enterprise. But it's a profit that wouldn't be possible without ready acceptance of the plan by clients who like the do-it-yourself features the plan affords.

LABOR

Peace Makers: Wyandotte Chemicals Corp. (Wyandotte, Mich.) workers have voted to accept a new two-year contract retroactive to May 4. The vote: 848 to 518, on the third secret ballot taken during the negotiations. Members of Local 11-627, Oil, Chemical & Atomic Workers, had been working without a contract since March 1 while negotiators struggled over a no-strike clause insisted upon by the company. The new contract calls for a "modified" no-strike clause stating that the union will not strike unless the company refuses to arbitrate on an issue. It also includes wage increases this year and an automatic across-the-board increase on May 4, '62 in a wage and benefit package amounting to 18.5¢/hour over the two years.

• OCAW Local 3-463 and Phillips Petroleum Co. have signed a contract, ending a strike at the company's Borger, Tex., synthetic rubber plant. The one-year pact provides pay increases of 14-39¢/hour, allows the union to start wage negotiations in nine months and negotiations on other benefits in 10 months.

• Pay hikes ranging from 13 to 17¢/hour are included in a three-year contract negotiated by Mill Paper Ltd. (Hamilton, Ont.) and Local 879, International Brotherhood of Teamsters. Male employees receive a 7¢/hour increase dating from May 8, and an additional 5¢/hour on Feb. 22, '62, and on Feb. 22, '63. Wage raises to women amount to 5¢, 4¢ and 4¢ on those dates, respectively. Men received $25 retroactive pay: the women got $15.

KEY CHANGES

B. R. Dorsey to the board of directors, Callery Chemical Co. (Callery, Pa.).

Max Kotler to chairman of the board of directors, Long Island Plastics Corp. (Lindenhurst, N.Y.).

Virgil W. Meythaler and **Franklin K. Rader, Jr.**, to senior vice-presidents; **Henry F. Keith** to vice-president, Texas Gas Transmission Corp. (Owensboro, Ky.).

John G. Alexander to secretary, Olin Mathieson Chemical Corp.

L. Louis Malm to vice-president of Midland-Ross Corp. (Cleveland) and general manager of Industrial Rayon Co.

P. C. Mitchell and **J. C. Willey** to the board of directors, and **Thomas Welfer** to secretary, Harbison-Walker Refractories Co. (Pittsburgh).

Edward J. Loew to president, Engineering Management, Inc. (Park Ridge, Ill.), plant builder.

John F. Flagg to director of research, American Cyanamid's Central Research Division (Stamford, Conn.).

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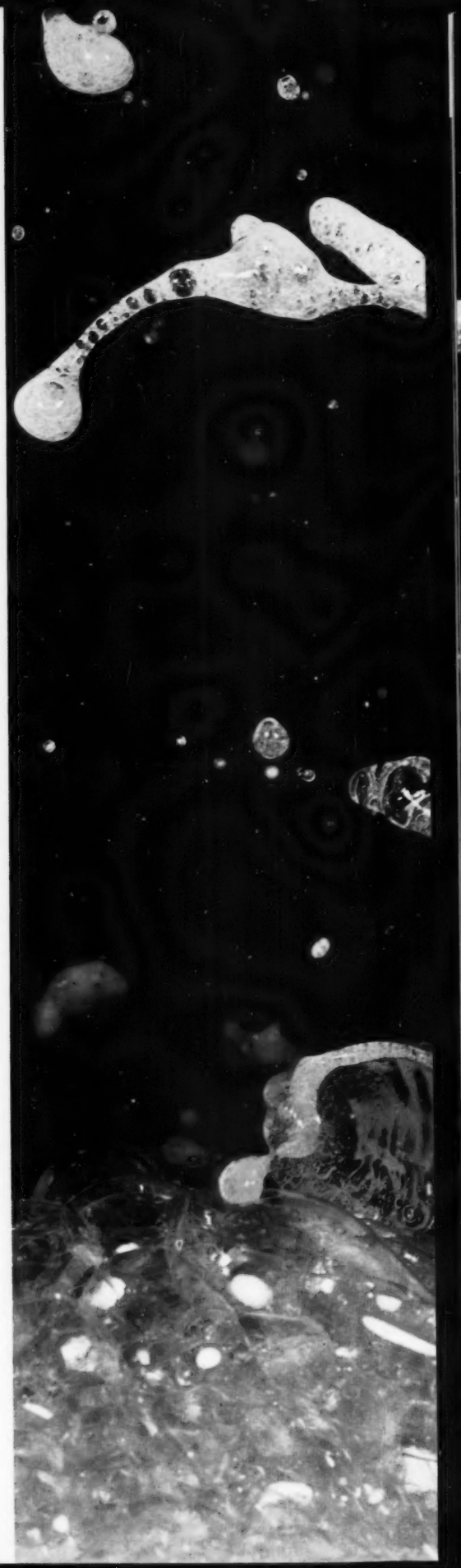
Key Chemicals: *The Pluronics have made great contributions to fields other than detergents, too—might prove useful in yours. If you have a foaming problem, write us for a sample of Pluronic L61. You may find it's as much a Key Chemical to you as it is to us!*



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Old-fashioned machinery and unusual construction methods characterize many foreign projects.

It's All in a Day's Work Abroad

How U.S. engineering contractors are combatting stiffening foreign competition for overseas projects.

In the photo above, Srimati Appayyama, working on The Lummus Co.'s Visakhapatnam Refinery project, marches past a vintage steam roller on her way to boss crews unloading boulders. She and her crews typify the sort of subcontracted work force most U.S. firms employ when operating abroad. It's an unaccustomed situation for U.S. builders, but one they will have to get used to if they expect to strengthen their overseas positions.

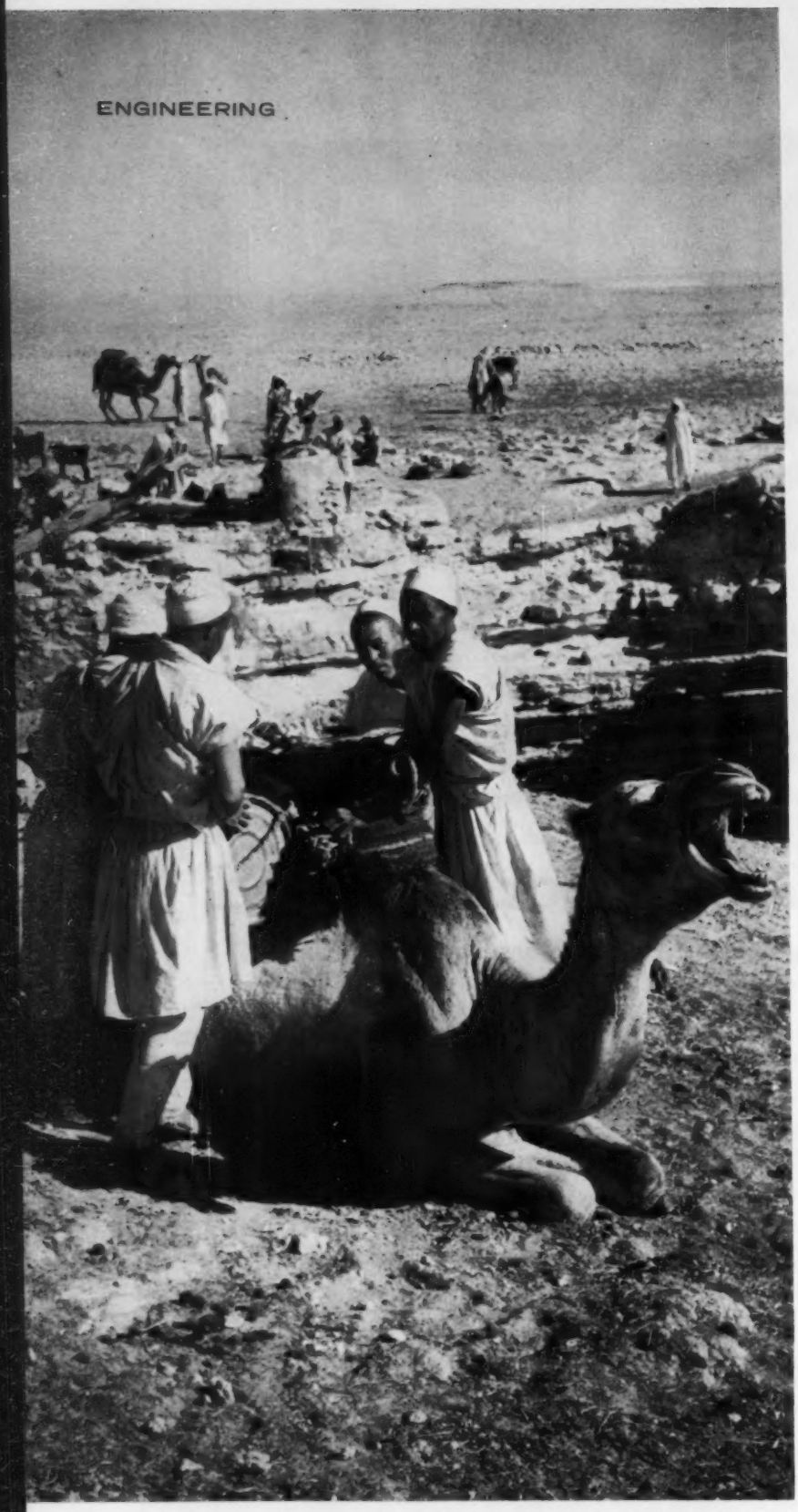
And now foreign work is shaping up as the biggest market for U.S. chemical engineering companies. The table (*p. 50*), listing foreign process plants (screened from McGraw-Hill's *Construction Daily*, Jan.-April '61), shows about $250 million in new contracts. This is a substantial jump—120% higher than in the last few months of '60, and the foreign contracts for July-Dec. '60 were already well over the first six months' contract total.

In response, almost all U.S. engineering contractors have opened foreign offices (*see table p. 53*), which have been welcomed by foreign governments. These offices, situated in countries where clients want design done locally, are usually staffed by a cadre of U.S. engineers, use local engineers for the bulk of design. They show that U.S. contractors are establishing themselves as leaders in foreign expansion.

U.S. contractors overseas can generally be classified according to the majority of their projects: proprietary processes, general engineering, or design engineering with construction. Generally, firms with proprietary processes or know-how tend to limit the number of their offices, do most work at home. Those handling general engineering (including process design) go in for multiple foreign offices. And those that take clients' or licensed processes and develop them through detailed engineering, procurement and construction favor joint ventures with foreign design-drafting firms.

Process Designs Proprietary: Process engineering has been the slowest phase of over-all design to be shifted to foreign offices. While a number of U.S. contractors offer "full services" out of their overseas subsidiaries, most tend to keep specialists (process developers, research, mathematical analysts, etc.) in the U.S. office.

Several firms initiate the process design in the U.S. and then send a "firmed up" flow sheet (with temperatures, pressures, material flows, etc.) to the subsidiary for equipment spe-



Earth moving sometimes means hands and camels. Antiquated methods like this often are less costly than use of bulldozers and trucks.

Building in Saudi Arabia:

cification and engineering design.

This mode of operation stems largely from the proprietary nature of the processes. Although few process designs are considered worth patenting, almost all take specialized experience and preliminary economic evaluations. Even the design for a crude oil refinery that is similar to hundreds of other units already in existence may contain sections (the crude oil heat pickup train, for example) in which an evaluated process scheme can be classed as proprietary.

An exception to the general rule, however, is Lummus, which has subsidiaries in London, Paris and The Hague, with a total staff of about 1,250.

Lummus has elected to set up a European Technical Center (London) to do process design as well as specification of equipment and piping stress analysis, etc. To staff this center Lummus moves process engineers in and out from the three European offices, using a minimum of Americans. The center includes a staff of engineer-programers operating an English computer (Elliot 803).

Another approach is illustrated by Compagnie Francaise d'Etudes et de Construction, called Technip. This firm, created from the French Petroleum Institute (Institute Francais du Petrole), was formed to give France a native engineer-contractor. It has been reinforced by engineers from Catalytic Construction Co., which supplied 30% of the capital. Other joint owners: Institute Francais du Petrole (43%), Societe National des Petroles d'Aquitaine (11%), Societe des Petroles d'Afrique Equatorial Francaise (6%), Commissariate a l'Energie Atomique (8%), and Eugene Houdry (2%).

Consolidated Know-How: Most firms feel that, once the process design is developed, they can work with foreign design-drafting firms to turn out an engineering design with equipment specifications, vessel designs, piping layouts, etc. By this arrangement a project engineer aided by three or four supervisors can handle a major project through a local office. Yet this rule also has its exceptions, as illustrated by Chemical Construction Corp., which has followed a general policy of restricting the engineering

(text continued on p. 55)

Camels and Coffee Breaks

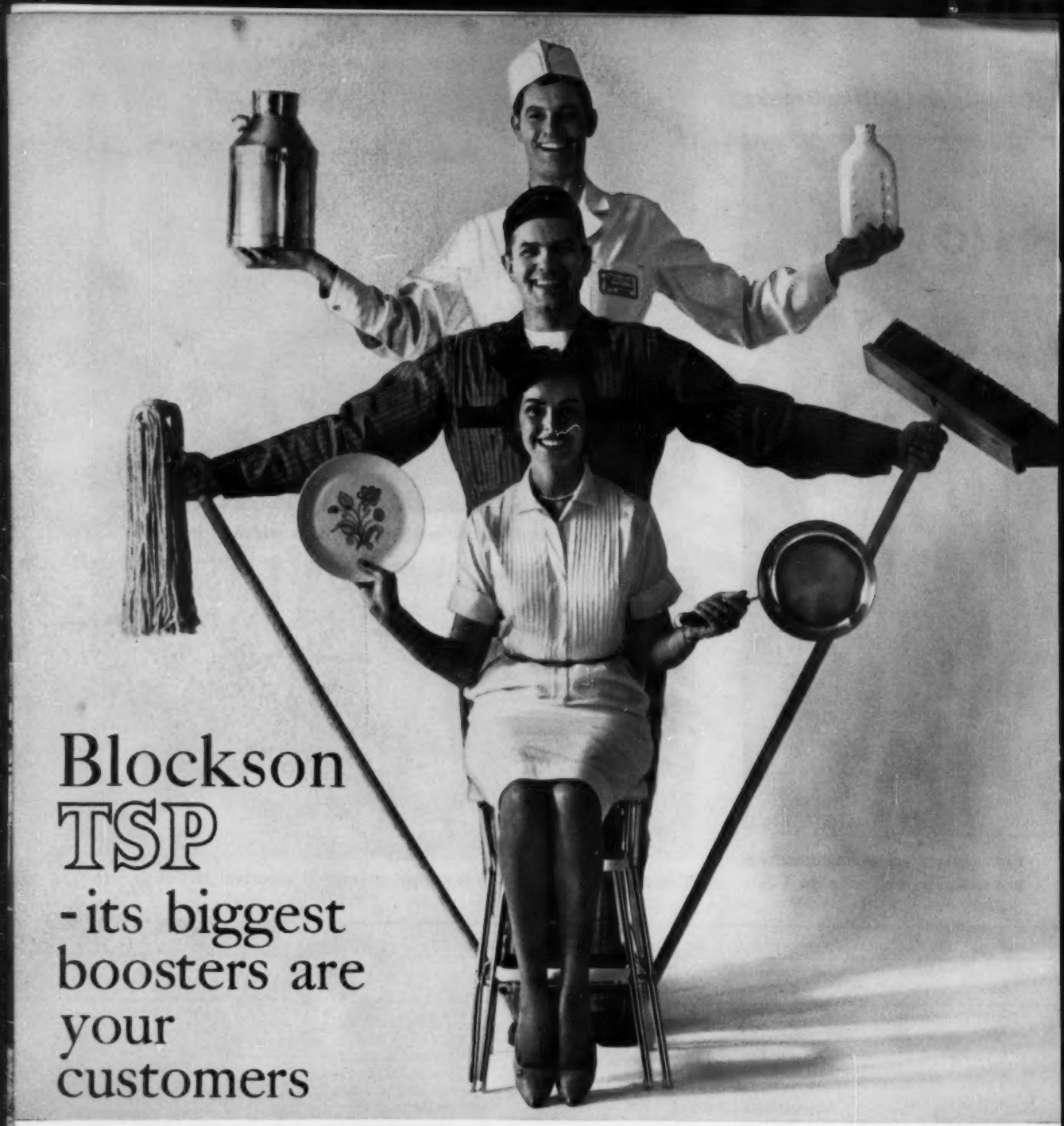
Coffee breaks are an important ritual overseas as well as in the U.S.

The crane and truck illustrate machinery to be provided at job-sites.

Training local personnel in construction crafts is important part of project.

New Contracts Point to Foreign Projects

Owner	*Engineer or Contractor*	*Reported Cost (million dollars)*	*Type of Plant*	*Location*
Organsko Kemijska Industrija	Foster Wheeler	35.0	petrochemicals	Zagreb, Yugoslavia
Petroquimica Argentina S.A.	Fish Internt'l Corp.	70.0	petrochemicals to synthetic rubber and benzene	San Lorenzo, Argentina
Imperial Oil Ltd.	Canadian Bechtel	5.0	benzene	Sarnia, Ontario
United Carbon Co.	The Lummus Co.	3.0	carbon black	Valencia, Venezuela
Marinduque Ison Mines Agents	Foster Wheeler	23.0	copper	Mindanao Is., Philippines
Esso Petroleum Ltd.		12.0	butyl rubber	Fawley, England
Puk Sam Chemical Industry Co.	Blaw-Knox	3.3	polyvinyl chloride	Seoul, Korea . .
Refineria Conchan-California S.A.	Fluor Corp.	1.0	crude unit	Conchan, Peru
Govt. of Indonesia	Morrison-Knudson H. K. Ferguson Girdler Constr.	38.0	urea plant	Palembang, Sumatra
Home Oil Co. Ltd.	Fluor Corp.	4.3	sulfur plant extension	Carstairs, Alberta
Polymer Corp. (SAF) Ltd.	Badger Mfg. (France)		rubber plant	Strasbourg, France
União Fabril do Azoto	M. W. Kellogg		fertilizer complex	Barra A Barra, Portugal
Esso Standard Oil	Ralph M. Parsons	10.0	refinery	Managua, Nicaragua
Petroleos Mexicanos (Pemex)	Brown & Root	3.5	oil storage	Matamoros, Mexico



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Foreign Subsidiaries (of U.S. Engineering Firms)

KEY:

Aus — Australian	**Jap** — Japanese
Belg — Belgian	**Lib** — Libyan
Can — Canadian	**Ned** — Dutch
Fr — French	**Pak** — Pakistani
GB — British	**Spn** — Spanish
Ger — West German	**Ven** — Venezuelan
Hon — Honduran	■ — full services
Ity — Italian	□ — design drafting

Badger Manufacturing Co. (Cambridge, Mass.)
■ Ned ■ GB ■ Fr

Bechtel Corp. (San Francisco)
□ Can □ GB □ Fr □ Aus

Brown & Root (Houston, Tex.)
■ Belg □ Can □ GB □ Hon □ Lib

Catalytic Construction Corp. (Philadelphia)
■ Fr

Chemical Construction Corp. (New York)
■ GB

Fluor Corp. (Los Angeles)
■ GB ■ Ned

Foster Wheeler Corp. (New York)
■ Can ■ GB ■ Fr □ Ity □ Jap

Hydrocarbon Research, Inc. (New York)
■ Ger ■ Fr

M. W. Kellogg Co. (New York)
■ GB

The Lummus Co. (New York)
■ Can ■ Ned ■ GB ■ Fr □ Spn

Ralph M. Parsons Co. (Los Angeles)
■ GB □ Fr □ Pak □ Ger

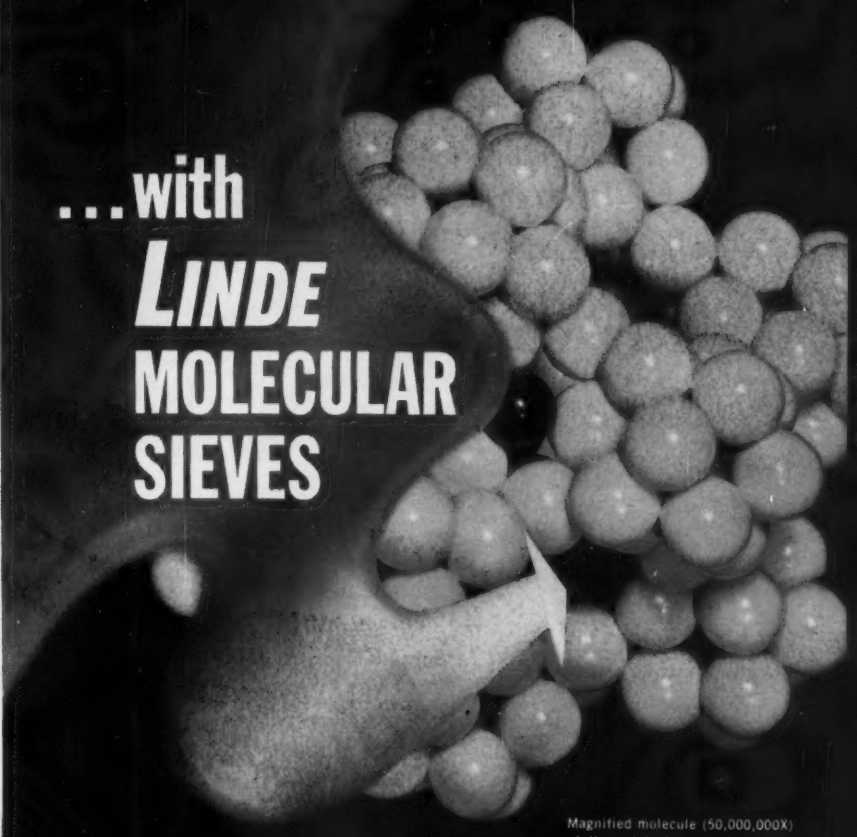
Procon, Inc. (Chicago)
■ Can ■ GB ■ Aus ■ Ven

Scientific Design Co. (New York)
■ Can ■ GB ■ Fr

Stone & Webster Engineering Co. (Boston)
■ GB ■ Fr ■ Ned □ Aus

Sales or project offices have not been included; ■ indicates "full services" with process engineering; □ indicate design-drafting services and procurement.

Real adsorption costs are lower



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Important savings achieved by increasing throughput of existing equipment

The use of LINDE Molecular Sieves provides the most economical approach to most adsorption problems.

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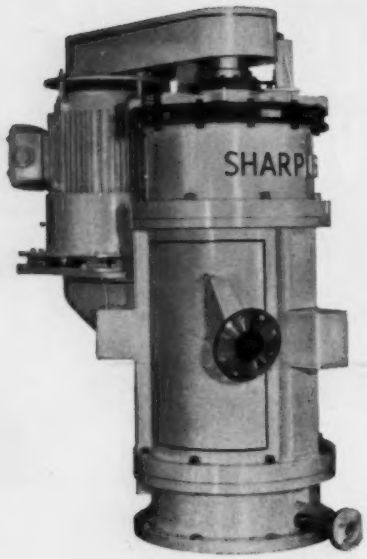
CENTRIFUGAL SKILL AT WORK



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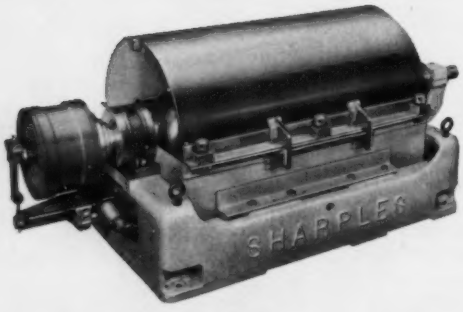
Write today for more information on the Super-D-Canter and how it can benefit your specific operation.



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(*Text continues from p. 50*)
design to its U.S. and London offices.

Chemico's approach reflects the fact that most of its foreign projects (currently almost 50% of its total work load) have concerned proprietary processes. Most have been for urea, ammonia, sulfuric acid, ammonia, phosphates, etc., units that have involved proprietary know-how in engineering design. Special designs for high-pressure reactors, for example, or unusual corrosion problems, etc., are difficult to handle through a subcontracted design group.

Ferreting Out Fabricators: Procurement—finding local manufacturers that can turn out bulk quantities of stock items or supply reliable equipment—is by general agreement the biggest problem in foreign contracting. There's no "approved list" of vendors.

Case in point: A U.S. contractor was handling all the purchasing for a $40-million refinery in Europe. Among many hundreds of purchase requisitions was a bulk order for thousands of alloy stud bolts. This order went to the lowest bidder, which was to take approved bar-stock made by a reliable steel company and thread it into bolts. When an inspector visited this plant, however, he found it was a corrugated steel shed, where the owner with two helpers used a single motor and a set of dies to make the bolts. If this motor were to burn out, construction would be held up on the entire $40-million project. It was too late to rescind the order, but fortunately, all turned out well.

It is virtually impossible to avoid incidents like this. But they can be held to a minimum and can be followed closely enough to avoid surprises during construction. This requires experience of the sort contained in a contractor's "job file." If a firm hasn't yet worked up such a file it usually sends in a team of purchasing agents and inspectors a year or so in advance of construction. This team sets up an office, locates fabricators and then follows up with expediting.

Even in areas as well-developed as in Europe this expediting is generally considered more important than in the U.S. One purchasing agent put it this way: "The problem is essentially one of persuading them to handle your order before they handle someone

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Three versatile grades give greater capacity, proficiency, and effectiveness

These LINDE-developed desiccants have proved more efficient over a wider range of applications than other commercial adsorbents.

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else's." This calls for: (1) diplomacy, (2) a thorough knowledge of the manufacturing processes, and (3) a detailed schedule that will let the expediter follow the work in progress in the shops.

Crafts for Construction: Construction usually uncovers the most dramatic differences between U.S. and foreign practices. Basically, these hinge on the question of subcontracting—a practice generally limited in the U.S. Here, the over-all engineering-contractor sets up a local employment office near the construction site; gets in touch with various labor unions, hires the personnel directly, assumes responsibility for supplying tools, qualifying the individuals, and general employee relations.

But foreign construction projects usually take a different approach, since: (1) local conditions vary from job-site to job-site, often making antiquated, hand methods cheaper than machinery, and (2) the engineering contractor is less likely to have his tools readily at hand. Foreign construction is usually handled through about a dozen subcontracts (site clearing, foundations, equipment erection, insulation, etc.) that are written for over-all supervision by the engineer-contractor's construction superintendent. This system can control quality of individual drafts without becoming involved in local labor policies or supplying cranes, rigging poles, earth-moving machinery, etc. Usually a general superintendent can supervise a major project abroad with no more equipment than two or three cars and a pickup truck.

Do It Direct? But even this general rule has an outstanding exception. Foster Wheeler Corp., which has subsidiaries in London, Paris and Milan, with a total staff of about 2,100, prefers handling construction through direct hire, unless the client specifies otherwise. Reason: to get closer control.

FW construction superintendents use legal advisors to analyze local labor laws and draw up policies applying to the several crafts. They set up employment offices, hire, provide billeting, and train natives at the job site. Recruiting is done through advertisements in local newspapers. Welders are trained in piping fabrication shops set up at the job site. And lists of qualified personnel are kept in the

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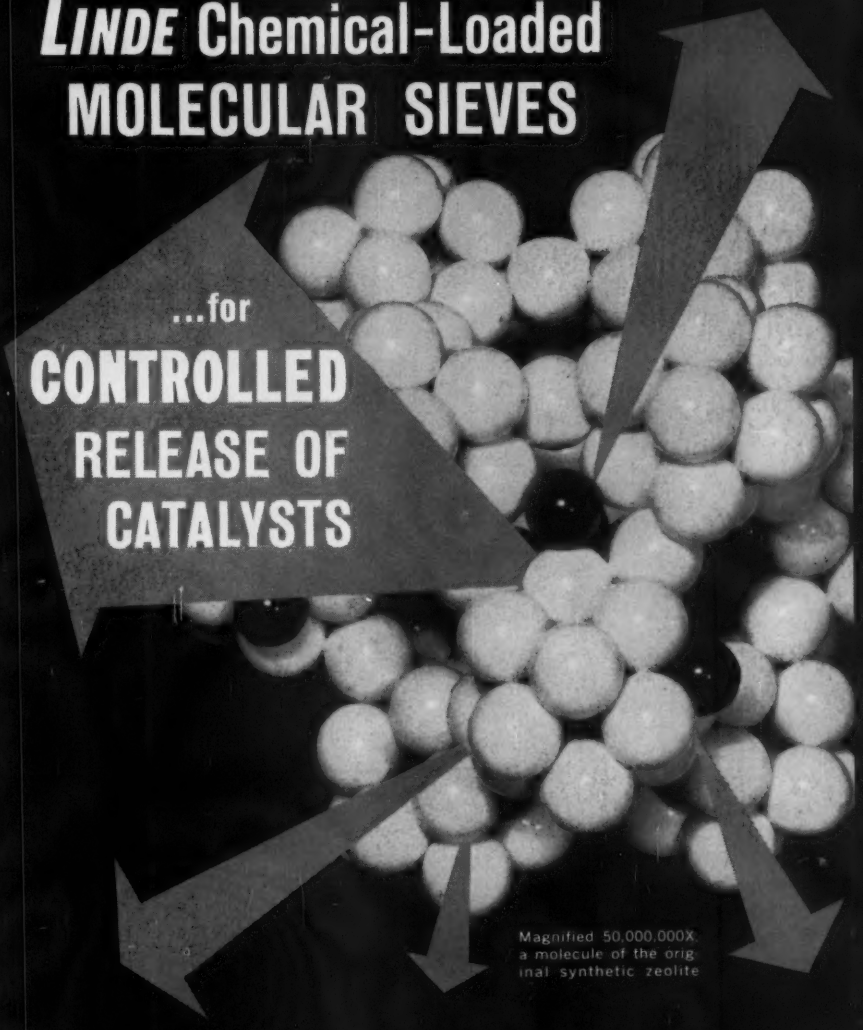

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These systems are competitive with or cheaper than pressure piping of several high-nickel alloys on an *installed cost* basis. Also there is zero corrosion rate to all acids, chemicals, and solvents to 500°F., except free fluorine and alkali metals at elevated temperatures.

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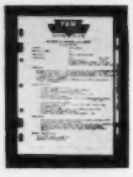

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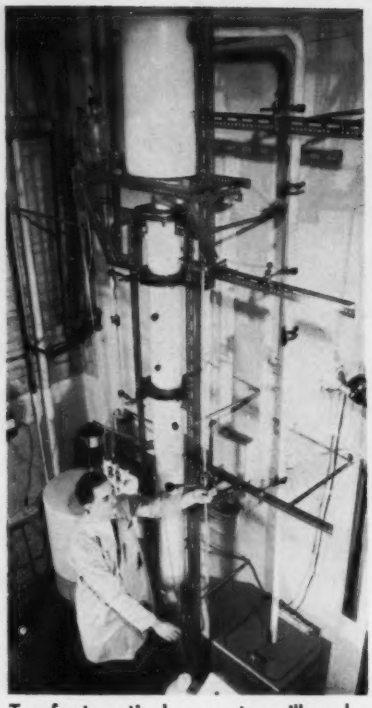
job file for use in future projects.

An example of this system is the refinery FW built for Esso in England. For this project, 60 FW superintendents controlled the work of some 8,000 people recruited directly from 22 labor unions. Over 1,400 welders were trained. In a typical FW project of this type an average of 2.5 craft supervisors (supplied by FW) report to each superintendent.

Equating Economically: Perhaps the most experience with foreign projects is concentrated at Esso Engineering, which prepares process designs and follows contractors' work in engineering and construction for Jersey Standard's worldwide refineries and petrochemical plants. Like the contractors, executives at Esso emphasize flexibility, making the objective economy with satisfactory quality. They point up some broad trends:

- Foreign engineering firms are improving. Some independents can compete with U.S. firms. Yet, while lower foreign wage scales may more than compensate for higher U.S. efficiencies, this wage gap is closing. Better engineering is also swinging foreign contracts more and more towards lump-sum bidding (*CW, April 8, p. 78*).
- The gap in equipment prices is closing. Equivalent quality now commands equivalent prices internationally. American vendors are showing themselves more willing to bid on foreign projects and frequently win contracts on the basis of quicker deliveries (*CW, Sept. 3, '60, p. 32*). And in typical examples, U.S. equipment orders help bring the engineering work to the U.S.
- Foreign procurement is improving. Especially in Europe, where purchasing can now be considered "continent wide." Lists of "approved vendors" are becoming more familiar. At the same time the new U.S. government policy on credit guarantees may allow U.S. equipment vendors to bid on more projects. If they can win these orders they may also win more design drafting work for the U.S.

It adds up to more competition for U.S. firms throughout the world—a situation many are countering by creating their own branches for on-the-spot contact with outfits planning expansion. And so far, as the recent statistics show, the U.S. companies have more than held their own.



Ten-foot vertical separator will evaluate new 'foaming' process.

No Water Blues

Last week, the Public Health Service awarded a contract to investigate sewage purification to Radiation Applications, Inc. (Long Island City, N.Y.), developer of a new "foaming" separation process (*CW, April 22, p. 89*).

RAI has been asked to concentrate on removing synthetic detergents from sewage streams. Conventional treatment techniques remove 50-60% of the sudsing agent found in detergents. But this is not enough to prevent sewage plants from gathering foam like a kitchen sink, hindering decontamination. And that's where RAI's novel separation process fits in.

Skimming the Surface: Its new technique, "Foament," will separate components of true solution, by taking advantage of the concentration differences between the surface layers of a solution and the rest of it. A water solution of a surface-active agent—e.g., a synthetic detergent—is thus more concentrated in the surface layer. When a gas is bubbled through, each bubble provides more "surface," and a foam is formed. When the foam is skimmed off, the concentrated syndet solution is taken with it.

BUTLER BULKERS KEEP CHEMICAL SHIPMENTS ON-STREAM

Chemical and processing industries are turning to over-the-road trailers for fast, dependable economical service on the shipment of many dry bulk products. And here's the pneumatic delivery trailer that's helping these industries move dry bulk products quickly, easily and profitably.

It's the Butler P-D* pneumatic delivery trailer . . . the first bulk trailer designed to handle a wide variety of dry flowables. Unloading of talc-like pulverants and granular products is a simple, near-automatic job. No special receiving equipment is needed. Clean-out is complete even with compacted loads or under conditions that would plug up many other trailers.

Equally important, these Butler bulkers not only operate efficiently, but they're profitable to operate. The vessel and delivery system are designed to conserve weight, yet still provide the strength so necessary for safe operation. And, these trailers are meticulously fabricated, rigidly inspected and tested to assure years of trouble-free service.

For the full story on Butler pneumatic trailers and the many products they can handle call or write the Butler office nearest you.

*Pat. Pending

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AIR-HOLDING INNERLINERS of Enjay Butyl HT 10-66 help assure correct inflation pressure for tubeless tires and can give greater blowout protection as well as improved tire-tread wear. Other tire uses include white sidewalls, black sidewall veneers and chafer strips.

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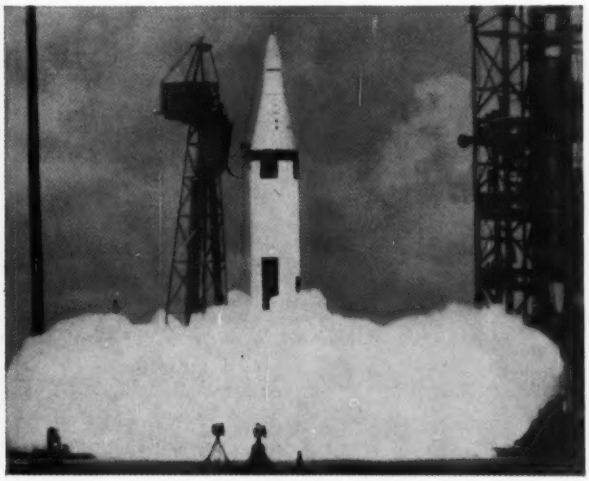

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the chemical salt "know how" of Whit Lonsdale!

Whit Lonsdale, Vice President and chemical salt specialist of the Diamond Crystal Salt Company, looks over a shipment of salt with Chester D. Jones, Director Purchasing for Diamond Alkali, and Maurice Sullenden (center), General Manager of Diamond Alkali's Muscle Shoals plant.

Most important to chemical salt users:—Get the grade of salt they want, in the vast amounts they need, at the lowest possible delivered cost. Salt specialists like Whit Lonsdale, have the experience, the ability, the handling "know how" to combine all these necessary elements into a single package to provide famous "Diamond Crystal Salt Service."

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Technology
Newsletter

CHEMICAL WEEK
June 3, 1961

Use of oxygen in a blast furnace is getting its first big tryout. Up to now, Colorado Fuel and Iron (Pueblo, Colo.) has used natural gas enrichment of the blast to reduce coke requirements. It is now trying oxygen as a means of further savings. The oxygen is currently being supplied by Union Carbide's Linde Co. from a big new (280 tons/day) installation.

Significance for chemical companies: the oxygen could reduce further the amount of coke consumed per ton of pig produced. This has already dropped from 1,920 lbs. in 1949 to 1,588 lbs. in 1959. It therefore means a corresponding reduction in coke-oven chemicals per ton of steel.

Linde has long predicted—on the basis of computer studies—that oxygen could increase blast furnace capacity by as much as 30%. U.S. Steel employs oxygen for ferromanganese. Weirton has been using a low enrichment (about 1½% oxygen). And several others (e.g., Bethlehem-Lackawanna, Kaiser Steel) are expected to start large-scale tests this year.

•

Harsh warnings for makers of coke-oven aromatics and naphthalene were issued by three U.S. Industrial Chemical Co. officials at the recent American Coke and Coal Chemicals Institute Eastern regional meeting in Rye, N.Y. V. L. Hansley, L. M. Watson and M. Faye, noted the "grandiose manner" in which petroleum refiners and chemical companies are boosting capacity for benzene and naphthalene from petroleum.

They concluded that, at equal prices, the customer would prefer the generally purer petroleum product. The coke-oven processor's chance of survival, as they see it, depends on his willingness to take extra steps to upgrade his product.

USI is not a disinterested observer, of course. It has a stake in processes to reduce sulfur by treatment with sodium. But the USI officials did reveal some significant costs on such processes: they estimate direct operating costs of an acid-washed light oil at 0.862¢/gal. in a 30,000-gal./day plant for which capital investment would be $350,000.

For naphthalene, a 10-million-lbs./year plant would require a capital investment of $50,000, and direct operating costs would be 0.5684¢/lb. A similar 50-million-lbs./year plant would require a capital investment of 100,000, and direct operating costs would be 0.429¢/lb.

Actually, what the producer of coke-oven material must compare is the cost of sulfur treatment with the cost of hydrogenation. Operat-

ing costs of the hydrogenation process are generally lower, but a heavier capital investment is required. For naphthalene production, the petroleum version is being offered at a premium. So the question there is whether the users (notably phthalic producers) can get an operating improvement commensurate with the extra price.

•

A new ion-exchange process for recovering chemicals from sulfite liquor will be unveiled next week. It's a joint development of Abitibi Power & Paper Co., Ltd. (Toronto, Ont.), and Pfaudler Permutit Inc., and has been operated successfully in a 1-ton/day pilot unit by Abitibi. It will be detailed at a meeting of the Technical Section of the Canadian Pulp and Paper Assn. at Saranac Lake, N.Y., June 7-9.

Others have been interested in similar approaches to the problem of recovering chemical values from the waste liquor. Ontario Research Foundation worked up an ion-exchange method for J. F. Pritchard & Co. and Fraser Co., aimed primarily at recovering ammonia or sodium (*CW, May 20, p. 55*).

The Pfaudler-Abitibi process apparently is aimed at recovering calcium, which (in the form of sulfite) is the most widely used chemical for sulfite pulping.

•

Thermoelectric generators are moving out of the experimental stage. Texas Instruments last week said it is making commercial models of a small (8-watt) device aimed at remote, unattended field applications—operation of values on transmission line or petroleum production facilities or for cathodic protection of buried or submerged metal. It operates on natural gas, propane or butane, is designed for ruggedness and reliability.

The company reports that initial deliveries will be of the 8-watt model but that other output ranges are available.

•

Cross-licensing patents with the U.S.S.R.? That's the goal of a technical mission leaving for Moscow June 15 to discuss the matter with the Russian All-Union Chamber of Commerce. The trip was arranged by the National Patent Development Corp. Jerome I. Feldman, president of the company, says both the State Dept. and the Dept. of Commerce know of the trip and its purpose. He points out that many U.S. patents are currently being exploited in Russia but that there's no mechanism for royalty payments. He concludes that it would be much better to establish a system whereby peacetime technical developments could be exchanged on an equitable basis.

However, the mission (and its goal) is likely to prove controversial. And it will certainly be limited by present regulations that forbid offering any know-how in petrochemicals to the Soviets.

New Safety-Lock Tab·Improved Cup Shape Add Increased Protection and Comfort to AO Flexible Mask Goggles

Model AO 484B Chemical Goggle

Here are four improvements that make these new AO Vinylite Mask Goggles safer to use, more comfortable to wear:

1 New lock tab, with snap button, holds lens securely to frame at point of greatest stress, improves fit around entire frame. Lens will not pop out, but can be removed quickly and easily for cleaning or replacement.

2 New recessed slots at end of cup fit *over and around* temples of safety (or regular) glasses to keep entire cup edges in contact with face.

3 Increased eye cup depth gives additional coverage and protection at temples.

4 Improved flash around entire edge of mask molds to contours of face.

Lightweight and well ventilated through louvers, these goggles have .050″ thick acetate lenses. Extra-large face mask has snug fit as an acid and alkali-resistant splash barrier, but is comfortable to wear.

AO also offers two other goggle models developed in conjunction with a leading chemical company for positive protection against splash. The AO 710 is recommended where humidity is a problem. The AO 711 protects the forehead, nose and part of the face as well as the eyes. Write for detailed folder S-1229 on all models.

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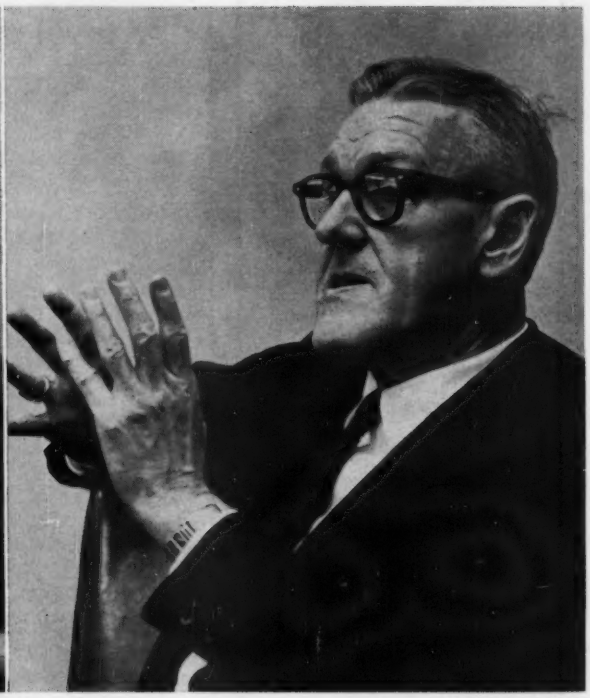
REICHHOLD

Pennsalt's Marketing Vice-President Albert Clem: 'Closer relations mean more effective marketing, smarter buying.'



CW PHOTOS—E. GILCREST

Pennsalt Purchasing Chief Allen Miller: 'Working under marketing doesn't stifle us, it broadens our scope.'

Purchasing Joins the CPI Marketing Team

Competitive pressures are forcing a union of purchasing and marketing in more firms.

How closely should chemical process companies' marketing and purchasing organizations work with each other? This highly controversial issue was raised anew in recent weeks as three major CPI firms — Pennsalt Chemicals Corp., General Tire & Rubber Co. and Dow Chemical—tied together their buy-and-sell teams to gain marketing mileage from their purchasing activities.

General Tire's move—setting up a corporate trade relations department —was not unusual in itself, since many CPI companies have similar operations. But Pennsalt and Dow have chosen a decidedly less customary—and perhaps more controversial — course by shifting their purchasing operations directly into their marketing organizations (*CW Market Newsletter, May 27*). Prior to these moves, only a handful of chemical companies (among them: Stauffer and Food Machinery and Chemical Corp.) had experimented with this kind of reorganization.

It's clear from these steps—despite guarded comments made by CPI managers on this subject—that reciprocity is getting added emphasis in today's highly competitive chemical business climate. Close purchasing-marketing cooperation doubtless yields other benefits, but the dominant importance is in companies' trade relations.

New Environment: Placing the purchasing department within the marketing organization, as Dow and Pennsalt have done, raises questions among CPI purchasing men. They are traditionally opposed to most measures that would tend to restrict their choice of suppliers. Management presumably has taken this into account, believes that in the long run, it will gain more than it will lose.

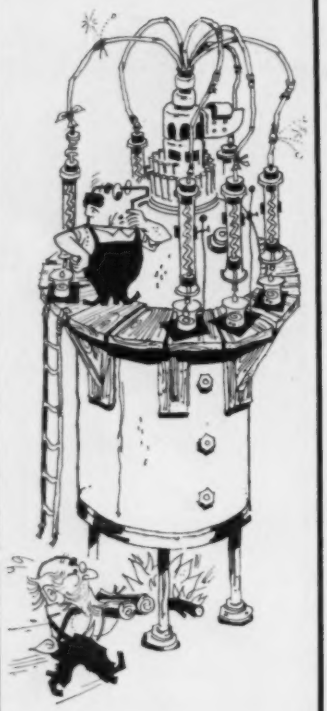
According to Pennsalt's Marketing Vice-President Albert H. Clem (*above, left*), the transfer of the company's purchasing department (headed by Allen Miller, *above*) into the marketing organization completes a broad marketing reorganization that was begun in the spring of '60.

In recent weeks, the company's traffic department was also integrated into this new operation; last year the advertising and public relations groups, and the sales promotion and market planning staffs were integrated with sales. But the most significant shift, of course, was the shift of purchasing into the marketing department.

The way Clem and Miller see it, improved purchasing-marketing coordination can accomplish several important aims: Among them:

(1) Insure that purchasing keeps pace with marketing activities so that embarrassing shortages or overages are minimized.

(2) Give purchasing a better insight into the firm's long-range



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marketing plans so that adequate preparations can be made for future procurement needs.

(3) Exchange the latest market intelligence and other chemical industry information of possible value to marketing men.

(4) Help reduce the high cost of distributing products.

(5) Provide a stronger system for maximizing purchasing's contribution to the marketing effort. In short, to use the company's purchasing savvy to further its marketing goals wherever feasible.

Clem and Miller are definite on this last point: they feel that while its importance should not be overstated, it should not be ignored.

Moreover, Clem declares, the redeployment of the purchasing operation is something of an experiment, but one based on the honest realization that the CPI interdependence virtually requires a company to buy from many of those to whom it sells.

Top-Level Integration: Dow's shift of purchasing operations into the corporate marketing scheme appears to be generally similar to Pennsalt's, although Dow is noncommittal on the details. So far, the company has indicated that Donald K. Ballman, formerly vice-president and director of sales, now will oversee the combined marketing, purchasing and distribution operations. Aim: to "improve the efficiency and effectiveness of the three functions, since they share certain common interests and their activities are closely interrelated." Improved communications and more complete and advantageous utilization of certain staff services are also expected to result from the change, says Dow.

Dow isn't saying more. But another recent Dow move—the setting up of a central purchasing office —would be a logical step toward gaining trade relations leverage (*CW, Jan. 28, p. 72*).

Reciprocal Sales: The Pennsalt-Dow shifts of purchasing into the marketing organization evoke memories of one of the early CPI precedents for this kind of move: a similar reorganization carried out by Food Machinery and Chemical Corp. several years ago (as reported in McGraw-Hill's *Purchasing Week, March 28, '60, p. 23*). In that story, Marketing Vice-President J. V. Vernon and Purchasing Director J. A. Mooney

Dow's Ballman: Profit hunt draws together marketing and purchasing.

prophesied that the purchasing-marketing alignment would become more common in industry as marketing became more vital to corporate success.

Their basis: records showing that reciprocity had helped increase FMC's Chemical Divisions' sales by some 15%—about $6 million—during the previous five years.

What's more, Vernon estimated at that time, about 50% of FMC's total '58 sales were tied in with reciprocity, possibly as much as 65% for the Chemical Divisions.

In that article, Mooney and Vernon stressed that they saw nothing illegal or unethical about buying from company customers. "Buying from those who buy from us gives the corporation the greatest benefit on major contracts."

Smoking Out Sales: There's little doubt that reciprocal buying pressures tend to mount when the economy takes a tumble, and a *CW* spot-check bears out that this did happen during the recent slowdown. But some trade relations managers expect continued pressure from management to turn the company's purchasing practices into substantial marketing advantages — even though recovery is under way now.

Whether, in the long run, the best way to make more than immediate sales gains is to integrate the purchasing operation directly with the marketing department remains to be seen. Pennsalt, Dow, FMC and Stauffer are betting on it—and until a seller's market returns, chances are there will be few firms willing to risk a strongly opposite course.

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Glass Still Fighting

How well are the old stand-by glass containers—carboys, bottles and jars—doing under the impact of stepped-up competition from newer packages?

Not badly, according to the latest "fact book" published by Glass Container Manufacturers Institute Inc. (GCMI). But there are growing signs that some types of plastic containers are biting into glass markets.

Losing Pace? GCMI reports that chemical process industries' usage of glass packaging — nearly one-third of all glass container shipments — dropped off slightly from '59's record 6.96 billion units to 6.91 billion last year.

One likely reason is the slowdown in general business activity. But it's a good bet that more of the losses may be due to inroads by plastic containers—jars, blow-molded bottles, carboys and various kinds of composite containers.

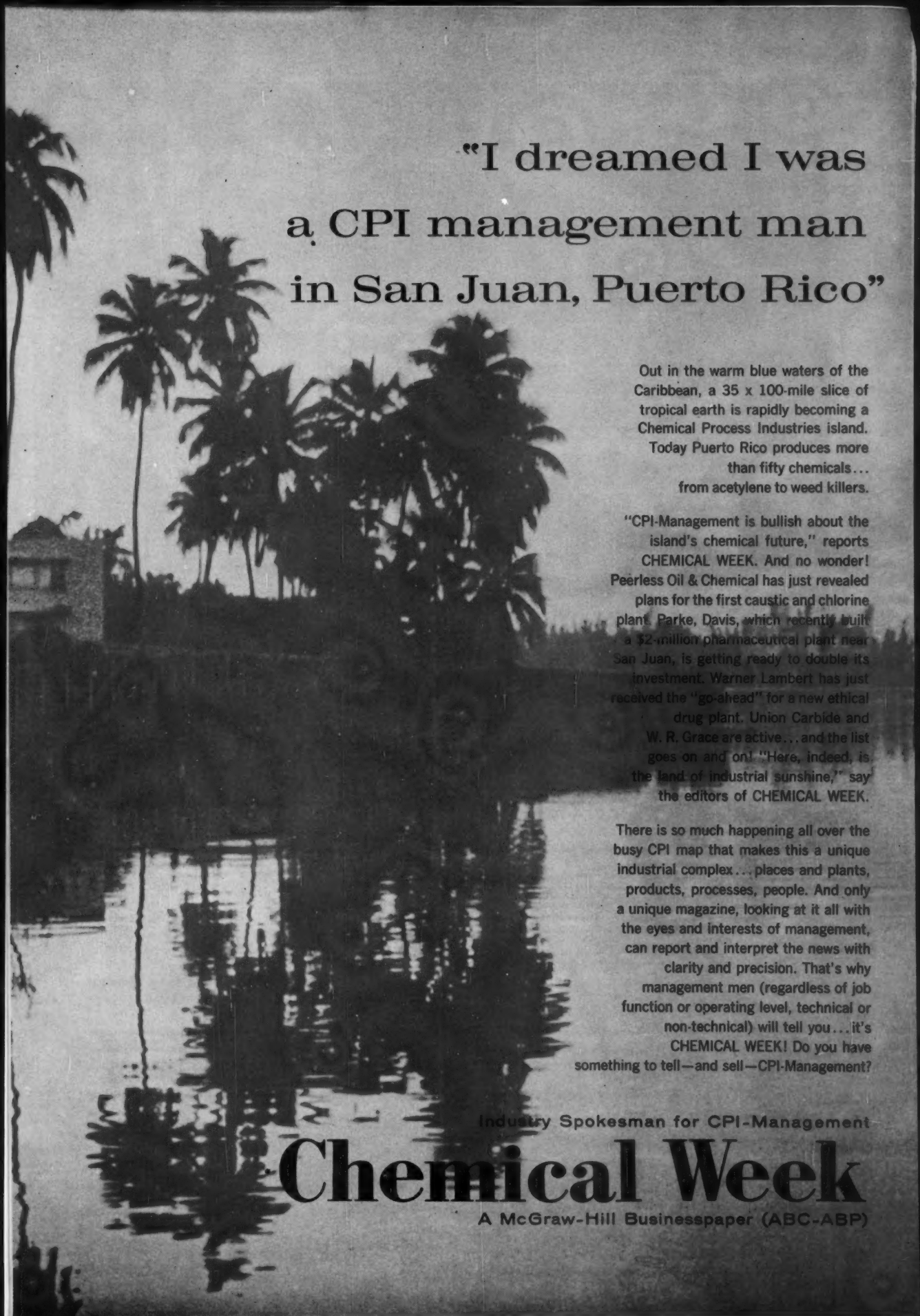
Biggest inroads by plastics were in specialty chemicals such as cosmetics, toilet goods, detergents and household chemicals, battery solutions and small-volume shipments of acids. For medicines and other health products, though, glass bottles and jars still command the market.

The CPI's share of glass container use hasn't changed appreciably since the mid-40s, according to the GCMI study. But drug and cosmetic glass packaging has fallen 33% from pre-war consumption, while household and industrial chemical uses have gained about 50%.

Wirebound Promotion: A booklet put out by Package Research Laboratory (division of Stapling Machines Co., Rockaway, N.J.) shows just how and why the plastics have been so popular. It covers several types of polyethylene composite containers—drums, carboys and blow-molded "bags"—that have been doing jobs formerly handled by glass carboys. The booklet was intended to give manufacturers of wirebound boxes—one of the several types of overwraps used with the polyethylene packages and one plugged by Stapling Machines Co.—a description of some of the leading types of polyethylene packages now being used for chemicals. One section of the booklet describes chemical industry shipping and packaging practices, points out where wirebounds are competitive.

More Chlorine Over the Roads

This new, 17-ton Fruehauf truck, owned by Sierra Chemical Co. (Reno, Nev.), illustrates one reason why chlorine bulk shipments over the highways are gaining: more conventional (thus cheaper) designs. Recently (*CW Market Newsletter, March 25*) Sierra became the second U.S. firm to receive and deliver chlorine this way; Ohio's Dover Chemical Co. pioneered the scheme in this country last year (*CW, March 19, '60, p. 31*). Now three chlorine producers (Stauffer Chemical Co. — its Henderson, Nev., plant is supplying Sierra; Food Machinery and Chemical Corp.; Pittsburgh Plate Glass Co.) are offering to load customer-owned trucks, and other distributors are considering similar schemes. Reasons: they get quicker service from producers, and they can make speedy, metered deliveries, without repackaging, by using the truck as a mobile warehouse.



"I dreamed I was a CPI management man in San Juan, Puerto Rico"

Out in the warm blue waters of the Caribbean, a 35 x 100-mile slice of tropical earth is rapidly becoming a Chemical Process Industries island. Today Puerto Rico produces more than fifty chemicals... from acetylene to weed killers.

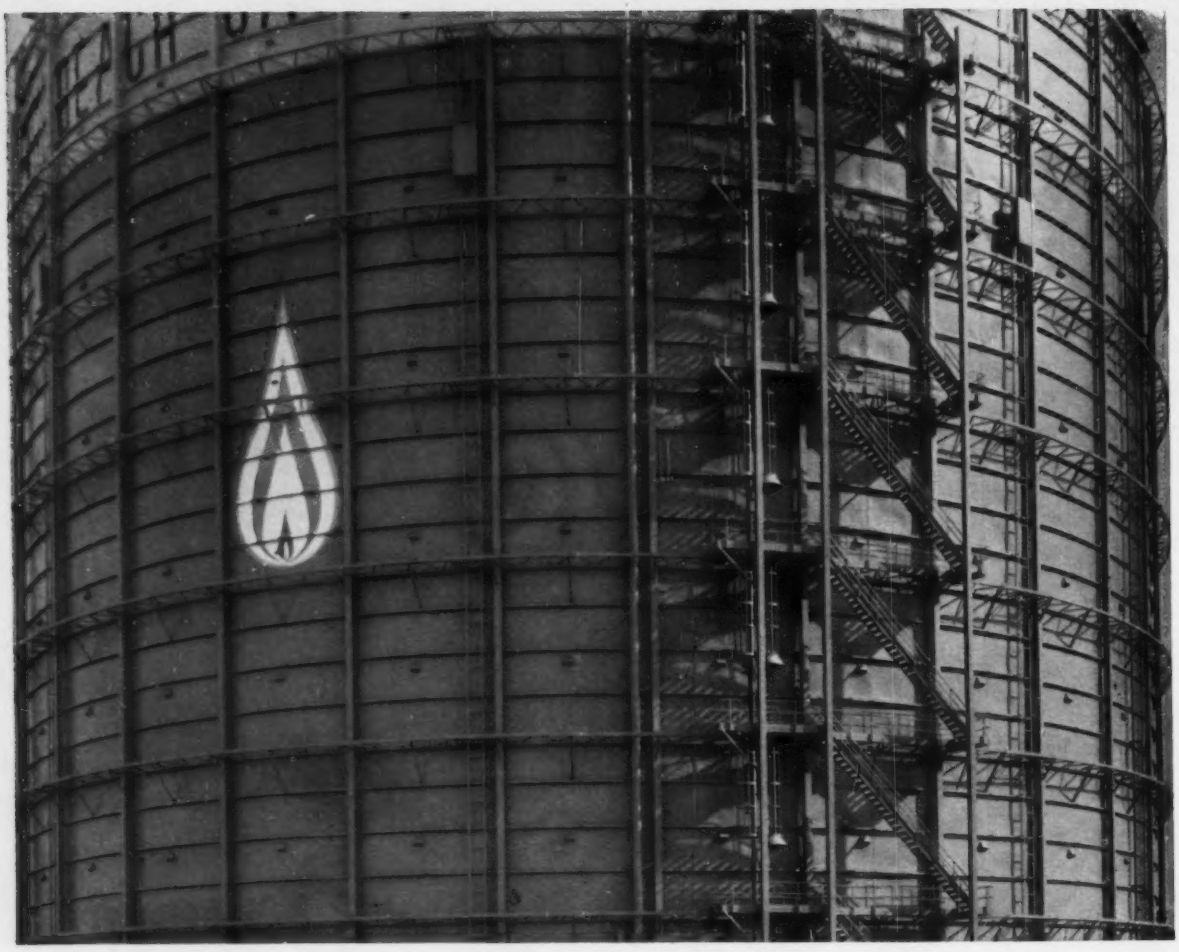
"CPI-Management is bullish about the island's chemical future," reports CHEMICAL WEEK. And no wonder! Peerless Oil & Chemical has just revealed plans for the first caustic and chlorine plant. Parke, Davis, which recently built a $2-million pharmaceutical plant near San Juan, is getting ready to double its investment. Warner Lambert has just received the "go-ahead" for a new ethical drug plant. Union Carbide and W. R. Grace are active... and the list goes on and on! "Here, indeed, is the land of industrial sunshine," say the editors of CHEMICAL WEEK.

There is so much happening all over the busy CPI map that makes this a unique industrial complex... places and plants, products, processes, people. And only a unique magazine, looking at it all with the eyes and interests of management, can report and interpret the news with clarity and precision. That's why management men (regardless of job function or operating level, technical or non-technical) will tell you... it's CHEMICAL WEEK! Do you have something to tell—and sell—CPI-Management?

Industry Spokesman for CPI-Management

Chemical Week

A McGraw-Hill Businesspaper (ABC-ABP)



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Through years of experience with more than 500 installations of all sizes, General American Wiggins Gasholders have proved the safest, most economical of all. *It pays to plan with General American.*

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Market Newsletter

CHEMICAL WEEK
June 3, 1961

Government-owned tung oil stocks are being whittled. The U.S. Dept. of Agriculture reported last week that it had sold some 1.8 million lbs. of surplus oil to North American Continental, a major New York export-import house. Sales were in three lots of 60,000 lbs. each, at prices of 25-25½¢/lb., f.o.b. Marrero, La. Much of the material, says North American, will be exported to the U.K., Europe and the Far East.

Tung oil production in the Far East has been rather skimpy because of bad weather, and this has contributed to a tightening in world tung supply. Reportedly, some material recently brought into the U.S. from South America and earmarked for sale here, has been re-exported overseas because of the currently hot demand. Tung oil is used in a variety of chemical applications such as plasticizers.

•

"Buy American" policy in fertilizers is causing consternation among Japanese producers. Out of Tokyo comes word that the Japan Ammonium Sulfate Export Assn. will send two fertilizer firm executives to Washington and one to Pakistan this week to "persuade" International Cooperation Administration officials that the policy regarding fertilizer-buying is uneconomical. (ICA is the principal U.S. foreign aid agency.)

It is uneconomical, says an association spokesman, for ICA to buy ammonium sulfate from the U.S. rather than from Japan, for example, since American material costs about $70/ton (c.i.f.), as against $46/ton for Japanese sulfate.

Japan would be blocked, under the current Buy American drive, from bidding on upcoming Korean and Pakistan urea orders totaling about 400,000 tons (N). Each of these countries has been getting urea at a rate of 60-65,000 tons/year.

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More phenolsulfonic acid on the West Coast. Dow has just started production at its Pittsburg, Calif., plant. Until now, the company has been supplying Western customers with acid from Midland, Mich.

The Dow move follows by a few months, Monsanto's bringing a phenolsulfonic acid unit into operation at Avon, Calif. Since Dow must now buy phenol and sulfuric acid for its new unit, Monsanto would appear to have an edge in the raw materials department—both are available at Avon. But Dow will shortly have a new phenol plant onstream (at Kalama, Wash.); it's on deepwater, will be able to supply the Pittsburg plant easily.

Total West Coast market for the sulfonic acid is about 3 million lbs./year, and the material sells for about 14¢/lb. Neither Dow nor Monsanto has divulged capacity figures but the two new plants, said to be operating on a batch-process basis, should supply more than enough to cover all sales requirements.

Market Newsletter

(Continued)

Strengthening prices continue to feature the copper and copper chemicals markets. In the past few weeks primary metal prices have been hiked twice, now stand at 31¢/lb. But chances are this may not be the ceiling for long, if copper supplies tighten.

Next month, for instance, at least one major U.S. copper producer will face labor contract negotiations, and this could possibly result in a production shutdown. A strike is now on in Chile, and, says a knowledgeable marketer, "if the situation worsens in Africa, the whole world will be crying for copper."

Related to the firmer copper metal pricing, most chemical derivatives are higher. Copper sulfate (crys.) tags, for example, were advanced 50¢/cwt. in two moves during May, now sell at $12.50/cwt.; the tribasic (c.l., works) price, upped $1/cwt. since May 1, is quoted at $28.60/cwt.

Copper chloride (cupric and cuprous), copper carbonate and monohydrated sulfate prices have all been raised, and here too, the indication is that further increases would not be unexpected.

•

On the other hand, polyvinyl chloride prices seem to be in a mess. General purpose PVC resin, for example, pegged at about 23-25¢/lb. about a year or so ago, is now moving at a beat-down tag of under 17½¢. In some instances, say trade observers, domestic material is actually undercutting low-priced Japanese imported material.

And Japanese imports of PVC sheeting is priced at 10-15% under "normal" U.S. quotes in some areas.

Despite the inroads made by Japanese material (resins and sheeting), trade reports indicate that U.S. makers don't yet feel the situation is serious enough to warrant an attempt to secure tariff protection. But, says one, don't rule out that eventuality.

•

Supply of tall oil fatty acids is tightening up. Demand, for all grades, has been active enough to make the material "almost unavailable," says one observer. It's a switch from conditions about six months ago, when the acids were reportedly "very loose." Current calls have inspired increases of at least 1¢/lb. on various grades by some producers; others are expected to hike their schedules this month.

In contrast, tall oil rosins continue to ease. Prices were reduced a few weeks ago by major producer Arizona Chemical (to 12.15¢/lb.)—to "bring stability to the rosin market"—but the situation is still unsettled.

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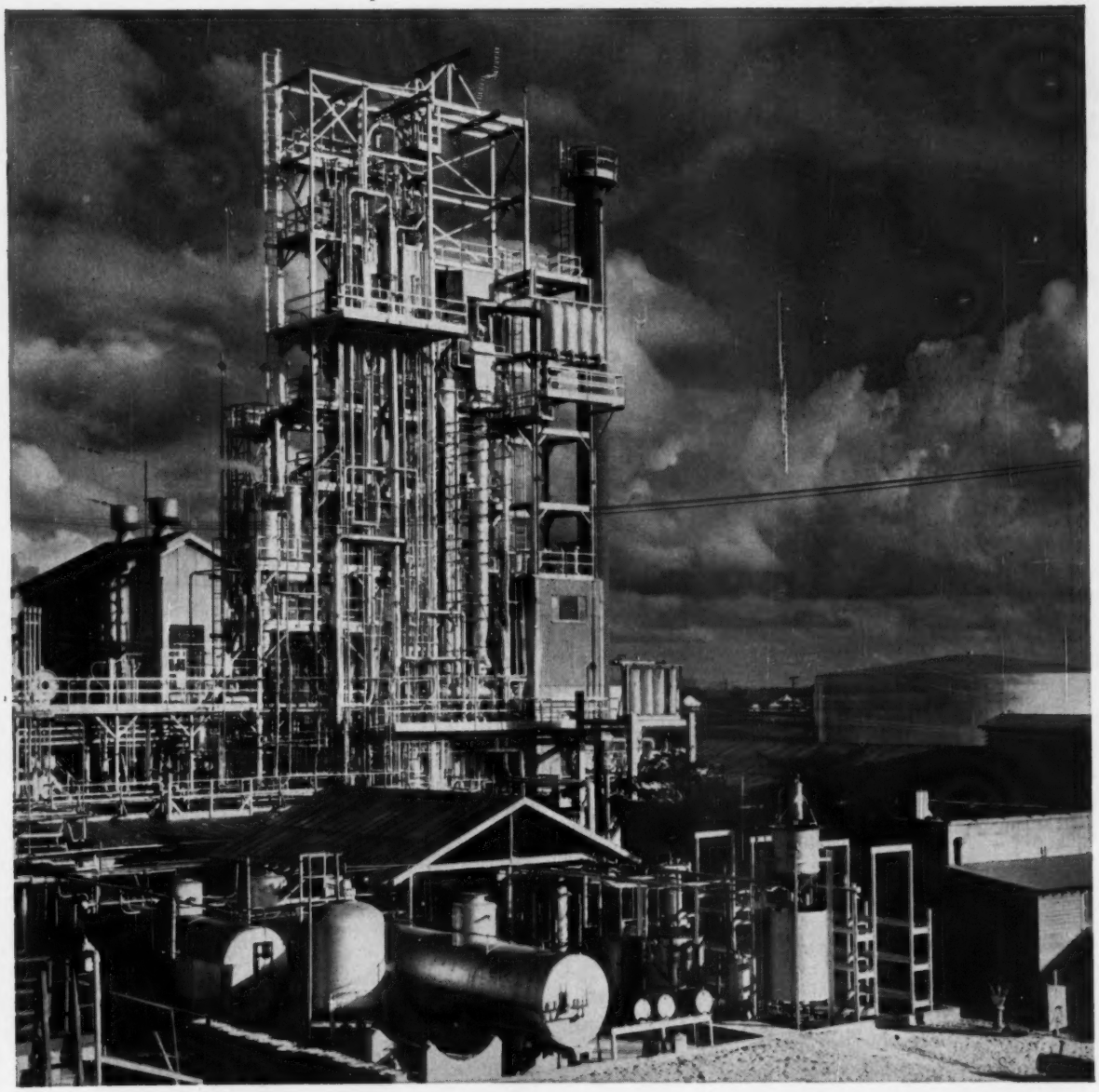
A new polystyrene foam will be unveiled at the upcoming National Plastics Exposition (sponsored by the Society of the Plastics Industry) in New York next week. It's Foster Grant's Fosta Foam.



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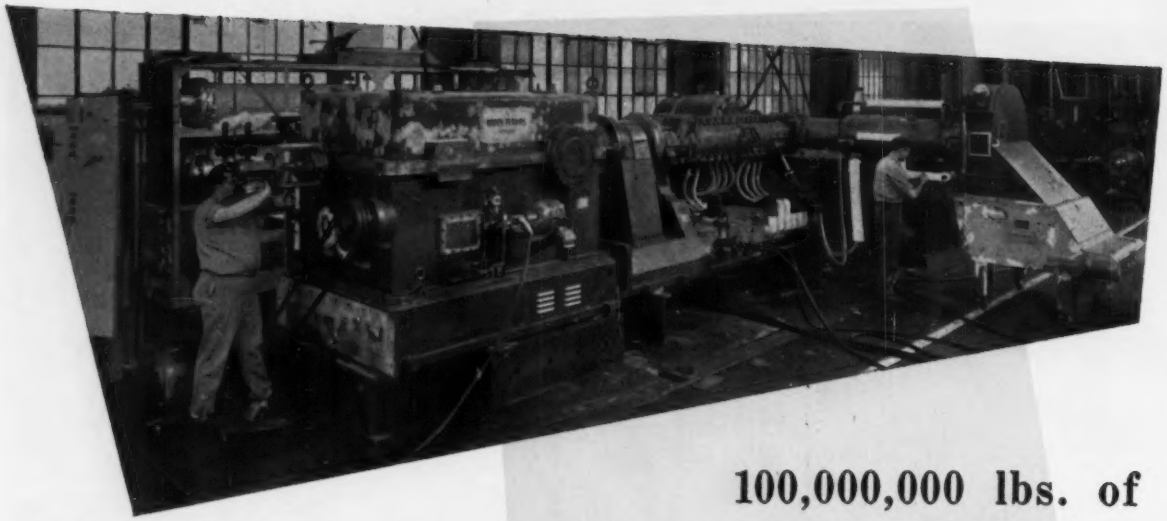


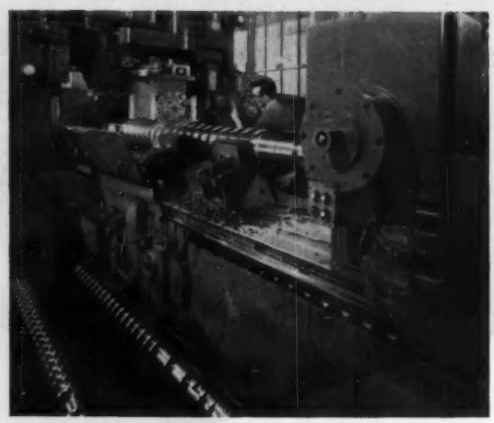
100,000,000 lbs. of POLYOLEFINS PER YEAR WILL BE PRODUCED BY 10 CONTINUOUS PROCESSING LINES NOW BEING BUILT BY BAKER PERKINS

Now all the well known advantages of continuous processing have been adapted by Baker Perkins to compounding polyolefins and other plastics. The operation of each B-P processing line is fully continuous from the feeding of the polymers, pigments, stabilizers and other additives to the discharge of the dried pellets ready for bagging. Each line includes a Force Feeder, *a Ko-Kneader (List System) Continuous Mixer, *a Cross-Head Extruder, *a Hot-Cutting Unit, Water Cooling Trough, Dewatering Conveyor and *Heating and Cooling Unit for the Ko-Kneader and Extruder. Individual lines are designed for 750, 1800, or 3500 pounds per hour.

*These units are shown in top photograph.

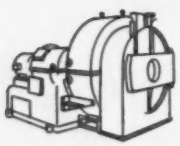
ADVANTAGES OF B-P CONTINUOUS PLASTICS PROCESSING SYSTEM

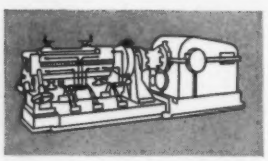
- Improved Product Quality
- Maximum Operating Flexibility—
  Coloring, compounding, venting, modifying, blending and homogenizing can all be accomplished in the same machinery without any alteration.
- Lower Installed Cost—
  Single floor installation
  Uniform power loads minimize electrical wiring requirements.
- Reduced Operating Costs
- Low Maintenance Costs

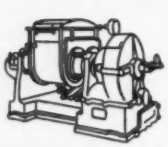


Modern equipment and skilled operators produce the precision components of Baker Perkins plastics processing lines. The operator in the photo above is machining a Ko-Kneader screw on one of the many special purpose machine tools in Baker Perkins shops. Extruder screws are also machined on this same machine. Exacting quality control is maintained in all manufacturing operations at Baker Perkins.

BAKER PERKINS INC.







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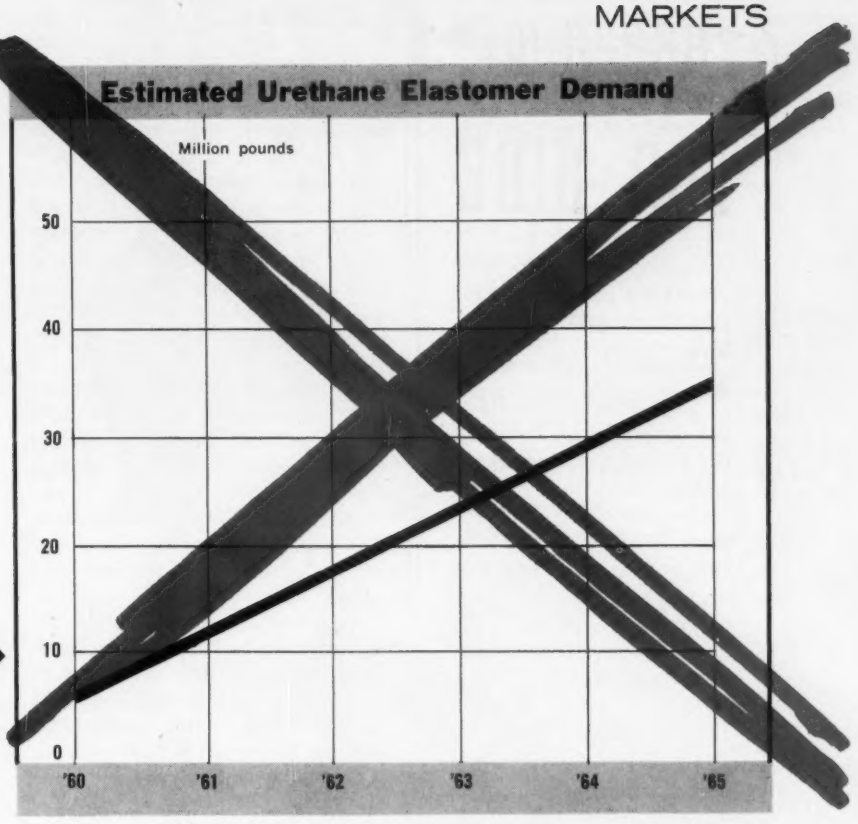

The old projections are meaningless; new uses recast outlook for polyurethanes.

Urethanes Outstrip the Form Chart

Until recently the outlook for urethane elastomers indicated only modest volume growth over the next few years. But now several new developments have come along to offer the solidest evidence yet that urethane elastomers are on the brink of burgeoning demand. If so, such new uses will quickly render obsolete the current market projections for these materials (see chart, above).

In '60 demand for urethane elastomers hit 6.8 million lbs., according to U.S. government statistics. And recently, market observers were estimating '65 demand at about 35 million lbs. But the following new factors point to far greater growth for these elastomers:

- Growing market acceptance of moldable and extrudable urethane elastomers.
- Increasing acceptance of elastomeric polyurethane fibers.
- Renewed optimism for commercial production of polyurethane tires in the foreseeable future.

Urethane Tire Looms: According to industry reports, Du Pont has hurdled the final technical obstacles standing in the way of a polyurethane tire: cast polyurethane tires—twice as durable but costing only 30% more than conventional SBR variety—will hit the passenger and truck tire market within a few years, say trade observers.

Du Pont says that reports of this kind are unfounded, but it's no secret that the firm has for 10 years done considerable research toward the development of a suitable polyurethane tire.

During '60 tire production chewed up a whopping 1,535 million lbs. of synthetic and 724 million lbs. of natural rubber. Even a modest 5% penetration of this market by polyurethane would account for more than over 110 million lbs./year of polyurethane rubber.

Naturally it's still too early to pinpoint the extent of the penetration in tire markets until manufacturing costs are pinned down. But the potential is enormous.

Commercial attention is also being focused on the new elastomeric urethanes that can be processed like other plastics—on standard injection, extrusion and transfer molding equipment. Producers, B. F. Goodrich and Mobay, are aiming their sights on markets that could develop into 100 million lbs./year by '65. Most observers feel this figure is overoptimistic, however, since present demand for these materials is estimated at only several million pounds/year at most.

The major market targets of the producers are (1) cable jacketing; (2) mechanical rubber goods—e.g., gears, bushings, gaskets, industrial wheels; (3) tubing for oils, gasoline; (4) women's heel lifts. Even extruded film is being considered to be a potential application.

The total potential in cable jacketing alone is estimated to be over 650 million lbs./year. But the lion's share

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of this market is served by inexpensive materials,—e.g., polyvinyl chloride, neoprene, polyethylene, which are expected to maintain their position largely because of low price. But polyurethane jacketing should be able to pick up a small percentage of the market in special applications where the improvement in properties—e.g., solvent and abrasion resistance—warrants the payment of a premium price.

It's conceivable that urethanes could capture about 7% of the cable jacketing market potential, and thus find a demand of about 45 million lbs./year by '65.

Mechanical rubber goods also represent a sizable potential. Almost 500 million lbs. of rubbers go into these outlets.

Observers say competition in this category will be keen, but urethanes should be able to slice out at least 10 million lbs. of this market—especially in applications where demand for superior resistance to gasoline, solvents, etc., is an important consideration.

The heel-lift market for women's shoes is an example of polyurethane's clear-cut edge over competitive materials. Compared with nylon, polyurethane heels display better abrasion resistance and give superior traction on slippery surfaces. But since this total potential is small, demand for this use should reach only a few million pounds by '65.

The other markets are still rather undefined and varied. But tubing in automotive applications may be an important future use.

Currently there are only two suppliers of moldable polyurethane elastomers: Mobay at New Martinsville, W. Va. and B. F. Goodrich Chemical at Avon Lake, O.

The products of these two companies are somewhat different, however. Goodrich's Estane is claimed to be a true thermoplastic that can be remolded indefinitely. Mobay's Texin is also a thermoplastic, but upon curing becomes thermosetting. Physical properties of Texin and Estane are also somewhat different, and the materials are not aimed at the same markets in all cases.

The outstanding commercial potential of these materials stems from their ability to be molded and extruded in conventional equipment instead of requiring the more expensive casting technique.

Urethane Textiles Booming: Stretchable urethane fibers are getting off to a fast start. Currently there are only two urethane fibers on the market in commercially available quantities: Dupont's Lycra and U.S. Rubber's Vyrene. Both companies put their commercial plants onstream last year.

These fibers, which stretch and snap back with high elasticity, are finding application in a host of products such as foundation garments, swimsuits, sock tops.

The potential for these fibers is bright, and by '65 demand should increase to at least 15 million lbs./year.

Outlook: The elastomeric urethanes are now showing signs of a fast market climb, although the high price of these elastomeric materials could impede the growth curve. But it seems likely that new elastomeric products will become available during the next five years to push prices down and give a boost to the over-all market.

MARKETPLACE

Mineral and Metal Survey: As part of a study aimed at more effective utilization of raw materials in California and Nevada, the Dept. of the Interior's Bureau of Mines is asking chemical producers in both states for information concerning their consumption of non-fuel minerals and metals.

The canvass, first of its kind undertaken by the bureau, is expected to show what kinds and amounts of mineral raw materials are being used and where they are currently being obtained.

The survey, helpful to the government in economic and defense planning, should also prove valuable to the hundreds of firms whose participation is requested.

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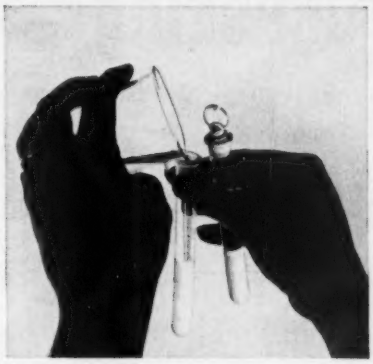
Syndets: Soap and synthetic detergent sales rose to a new high in first-quarter '61, according to reports from 51 manufacturers participating in the quarterly Sales Census conducted by the Assn. of American Soap & Glycerine Producers, Inc. Sales totaled 1,102,000 lbs., valued at $278,631,000.

Compared with first-quarter '60, the previous record high, sales of soaps and synthetic detergents were up 1.9% in volume and 1% in value.

How well does your oil pass the acid test?



Here is a demonstration of the U.S.P. Acid Test for measuring the extent to which a mineral oil has been freed of unsaturated and aromatic hydrocarbons. As you can see, the concentrated sulfuric acid in contact with Sonneborn's fully refined white mineral oil (left) remains clear and colorless. The oil on the right has turned black—typifying the presence of impurities.

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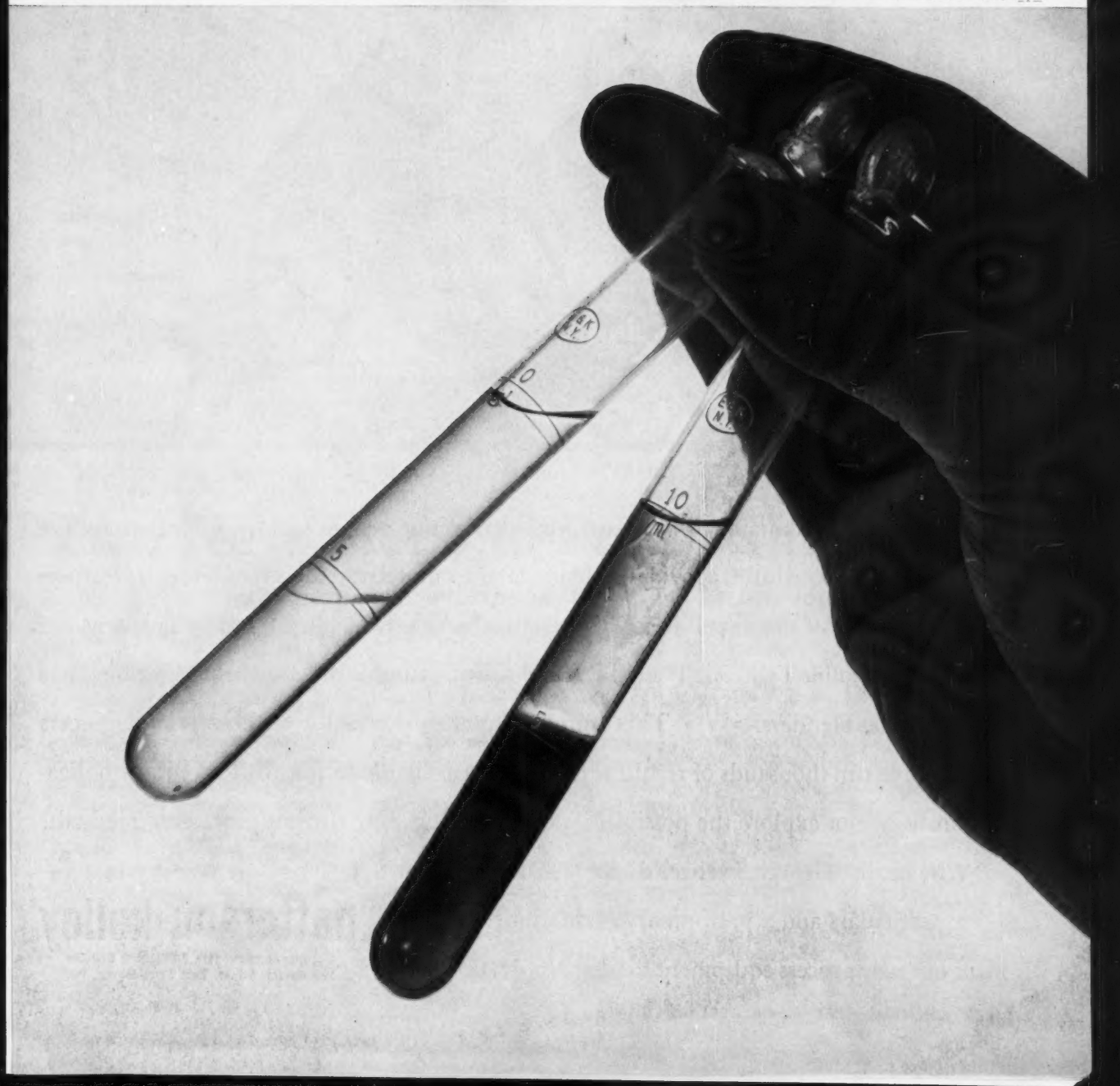

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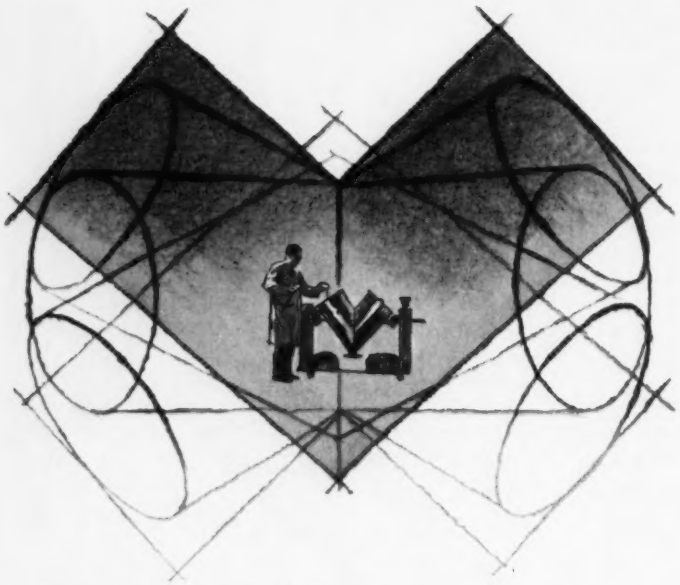

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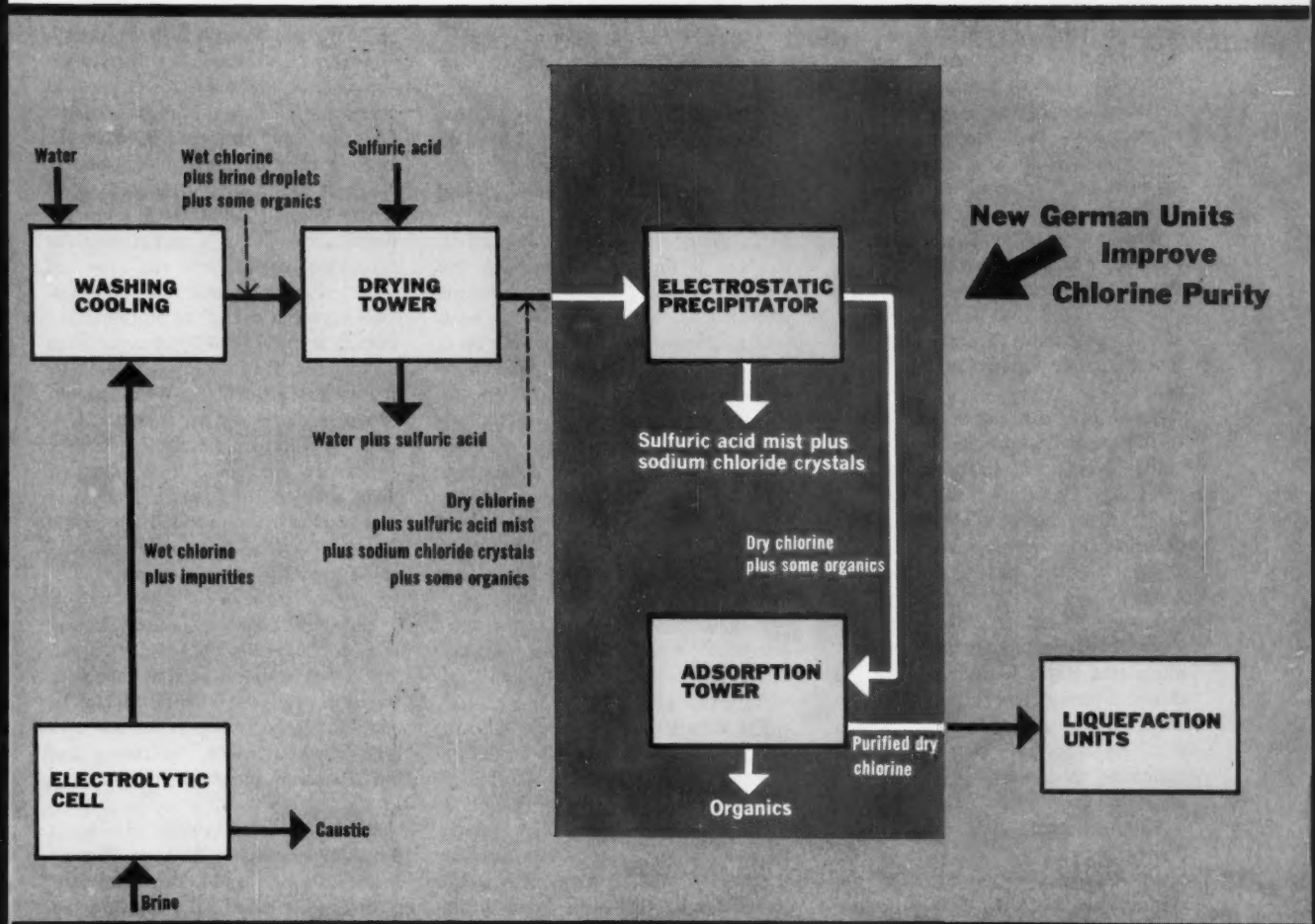

Two New Steps to Purer Chlorine

Precipitator and adsorption tower at Farbenfabriken Bayer knock brine, acid and organics out of gas stream.

A new twist in chlorine production may prove more than a little disquieting to producers in this country. Farbenfabriken Bayer (Leverkusen, Germany) has quietly added two pieces of equipment to its chlorine plant: an electrostatic precipitator and an adsorption tower.

This combination is the second offering in recent months (the first: following platinized anodes), to improve chlorine purity.

Chlorine producers are reluctant to admit to anything but highest purity for the chlorine they now turn out. However, just two months ago, Du Pont's Chambers Works, using platinized-titanium anodes instead of graphite in electrolytic cells, reported a "significant improvement" in chlorine quality after a 15-month trial (*CW, March 25, p. 153*). Now Bayer's method, available on license to chlorine producers in this country through Hoechst-Uhde Corp. (New York), offers potentially greater purity improvement without basic process alterations.

Bayer, which proved out the effectiveness of the units in pilot-plant tests for a year before adding them to the Leverkusen plant, fits the precipitator and tower into the existing flow stream between the chlorine drying and liquefaction units. The precipitator knocks out sodium chloride crystals and sulfuric acid mist from the chlorine drying operation. The tower, using activated carbon, adsorbs organic compounds produced from carbon anodes in the chlorine cell. It appears to offer chlorine makers an alternative to replacing carbon anodes with platinized-titanium, which might require cell rede-

sign, particularly for diaphragm-cell users.

Purity Dilemma: The reluctance of chlorine producers to admit that their product is not of the highest purity obtainable is understandable: additional purification steps would add to plant costs. If the steps were added, they would likely be a sales gimmick in most cases. As one chlorine producer points out, the chlorine now turned out is of sufficient purity to meet most users' process requirements. But if the users knew that purer chlorine could be purchased, they would probably demand it, even though it isn't required for their process.

There is also a question as to how readily the improvement in purity could be detected. Finding impurities in ultrapure chlorine might require users to set up new analytical procedures. Du Pont has one based on chlorine's use in making monochlorobenzene.

Bayer's Method: Hoechst-Uhde won't give out details of the technique that Bayer is using to improve chlorine purity. One U.S. patent (2,910,140) was issued in late '59. But it covers only part of the procedure, indicating that additional patent applications have probably been filed.

The basic purification steps for producing liquid chlorine remain the same. According to the Bayer patent, chlorine gas from the cells is usually contaminated with water vapor, ultrafine droplets of brine, and small amounts of chlorinated hydrocarbons, such as hexachlorobenzene and hexachloroethane. The latter are formed by the action of hot chlorine gas on the graphite anodes, on the paraffin used to impregnate the anode rods, and on rubber cell linings.

It is common practice at some plants to water-wash the chlorine gas when it is cooled after leaving the cells. This adds moisture to the already-wet chlorine. The wet chlorine is then dried in a tower with sulfuric acid.

But, according to the Bayer patent, chlorides are usually still present as an ultrafine dust, which precipitates and accumulates in pipelines, in working parts of the compressors, and in the liquid chlorine.

This dust (which is made up of sodium chloride crystals formed by the reaction of sulfuric acid in the drying tower with ultrafine brine droplets from the cell) is trapped by tube filters; but small amounts of organic impurities can't be removed.

In the Bayer patent, the chlorine gas is passed through a tube filter to remove the dust. This step apparently has since been replaced with an electrostatic precipitator, which removes the dust and any sulfuric acid mist as well.

To remove the organic impurities, the gas is then passed through the adsorption tower. The tower contains activated carbon, which has been saturated with chlorine at below 60 C to prevent the carbon and parts of the equipment from burning in the chlorine atmosphere (the heat of adsorption of large quantities of chlorine would heat the carbon to redness).

The activated carbon must also be largely free of water (the water would react with the chlorine to generate heat).

According to the patent, the activated carbon retains its adsorption capacity for several months, can then be replaced or regenerated.

The Green Goddess: If the adsorption tower's effectiveness in removing organics actually produces chlorine of the high purity claimed by Bayer, it could replace the so-called "green goddess" process used by a number of firms in this country. The green goddess route, which is many years old, reduces the organic content of the chlorine gas before it is liquefied by scrubbing with chlorine that has already been liquefied.

Whether Bayer's adsorption tower can be an effective hedge against the high investment cost of replacing graphite anodes with platinized-titanium remains to be seen. The platinized anodes eliminate the organics that reach the chlorine purification stream. But in addition the platinized anodes can cut cell operating costs.

On the other hand, Bayer's use of an electrostatic precipitator knocks out brine particles and acid mist, which would be in the purification stream regardless of the type of anode used.

With emphasis on chlorine quality from both platinized-titanium anode development and Bayer's new technique, chlorine makers seem due for some lively evaluation sessions.

EQUIPMENT

Steel Shapes: U. S. Steel Corp. (525 William Penn Place, Pittsburgh 30) claims a steel industry first for the commercial production of rolled structural shapes made from quenched and tempered alloy steels. USS is furnishing standard I-beams, channels and angles in lengths up to 40 ft. T-1 and T-1 Type A constructional alloys and 9% nickel steel for cryogenic applications as low as —320 F are among the offerings. USS says that use of its prefabricated shapes is up to 30% cheaper than customer-finished items. The new shapes may also cut down the amount of welding required for fabrication.

U. S. Steel is also offering Fremax 45, a new machining plate steel of high strength and wear resistance. The steel is recommended for gears, sprockets, cams, dies, rolls and machine ways for extra hardness.

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Ultrathin Tubing: Uniform Tubes, Inc. (Collegeville, Pa.) is out with 300 Series stainless steel tubing with ultrathin walls—0.0005-in. thick. In addition to corrosion resistance and high tensile strength, the tubing has the advantage of light weight.

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Process Pumps: From two basic pump types, Byron Jackson Pumps, Inc. (P.O. Box 2017, Terminal Annex, Los Angeles 54) has come up with a new line of standard process pumps that has 72 possible combinations. BJP's basic pumps are Model SMJ for high-temperature (to 850 F) service with top or end suction and Model SMJI for lower-temperature (to 400 F) service with internal mechanical seals. By interchanging standard, off-the-shelf impellers, covers, nozzles, bearings, coolers and other components, the requirements for almost any service can be met.

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Conveyor-Belt Zipper: The Hayden Zipper is a new type of portable splice-maker for conveyor belts offered by Scandura, Inc. (P. O. Box 949, Charlotte 1, N. C.). Splices are made with a single pass of the 36-lb. zipper. Four types of hooks, for different belt thicknesses and pulley diameters are offered to minimize zipper adjustment. Hooks have 7-mm. spacing; each provides 400-lb. holding strength.

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Prefabs: More Room for Specialties

Prefabricated houses are calling for new specialties and new ways of marketing them.

In the next few weeks National Homes Corp. (Lafayette, Ind.) will step-up production schedules to meet projected '61 sales of 20,000-25,000 prefabricated houses. This figure, 20% higher than last year's, points up the "prefab" industry's lusty growth—growth that has opened challenging opportunities in chemical specialties formulation and marketing.

Although only about 15% of the new homes built in the U.S. now are prefabs (the figure was 5% in '50), the 400 U.S. prefab companies have steadily increased their share of sales of new houses. They predict they'll provide about 40% of the new residences sold in the U.S. by '75. An estimated 200,000 homes will be factory-built this year; predictions are for 350,000 in '65, about 540,000 in '70—maybe 800,000 in '75.

On-Site Out? Mounting labor costs is perhaps the most important factor in the growth of on-site home building. Getting costs down will be important because the real spurt in future housing is expected to come from relatively low-income groups and from newly established households.

Also, the two-house-owner market is expected to climb and in many cases the second house—e.g., a summer house—will be a prefab. To capture these markets the house builder will have to depend increasingly on the savings made possible by production-line house building.

In line with this trend, makers of such items as adhesives, paints and other coatings, calking materials, and sealers will have to readjust not only the kind of product they sell but also the way they sell it.

Adhesives Growing: One of the specialties areas most affected by the growth of prefabricated housing is adhesives.

Glueing is making the nail obsolete in some cases. For instance, National Homes, the largest outfit in the business, is now working on a process to eliminate nailing of sheet rock, hardboard and gypsum board to the wall panels and partitions. It's working on pressure-sensitive tapes to attach wall panels to concrete foundations.

Not only is glueing more adaptable to production-line handling but also the "no skip" grip of an adhesive bond allows greater use of the structural-strength properties of materials. Right now, however, the bulk of adhesives go into laminating of partitions and affixing of insulation.

Door construction is also taking an increasing quantity of adhesives. The usual practice among prefab makers is to glue an ⅛-in. masonite sheet on either side of a kraft paper laminate "egg crate" or honeycomb core structure. After glueing, the masonite is sized, then painted and a wood pattern printed on with special ink.

Insulation, which formerly was nailed in place, is now being glued. A three-bedroom prefab, which now uses about 150-175 lbs. of glue, should, in the next few years, take almost double that amount when processes now under development reach the commercial stage.

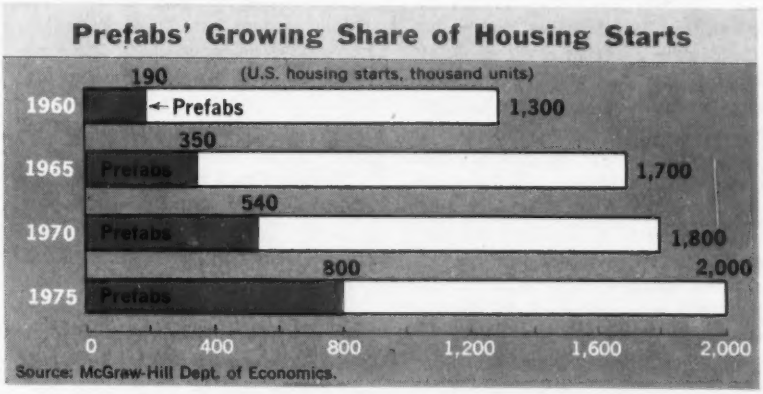
Coatings: Coatings use in prefab housing is undergoing more changes than adhesives application. At present one of the common practices is to supply the prefab buyer with coupons that can be traded at a local paint jobber. This practice will gradually die out as the prefab builders move toward their goal of supplying factory-finished interiors. This could mean that the prefab maker might soon become a larger-volume user of paints. On the other hand (and more likely) the prefab maker might prefer to use thin, laminated films that eliminate coatings completely. Use of glue instead of nails provides a flush surface for interior panels on which the plastic films could easily be laminated.

For exteriors, it is customary now to use siding that is prefinished by the aluminum, steel and lumber suppliers. Aluminum with vinyl or acrylic emulsion coatings has been used extensively; chances are that wood, masonite and plywood coated with polyester finishes may capture some of this market. One prefab maker is now working with an 8-10-mil polyester spray coat, which it thinks will provide 20-30 years' protection (only about ¼-mil erodes in a year).

Fire-retardant paints may enjoy larger markets in the prefab field in the future. One thing that could step up application of this type of coating would be the heavy use of styrene foam paneling. This burns and melts unless it is treated with a fire-retardant material or protected by a paint.

Factory-Finished Floors: Floors are getting increasing attention from home builders. The tough, glossy finish provided by urethanes has drawn strong interest; one prefab maker is now testing a 6-mil urethane finish to replace a 1/10-in. hardwood veneer for floors.

Also being looked at for flooring is vinyl film bonded to plywood. This is a strong possibility as a replacement for currently used, field-applied vinyl and asphalt tile. One holdback has



Prefab's Specialty Shopping List

1,500-sq. ft. three-bedroom prefab house would use:

Aluminum	1,200 lbs.	Vinyl vapor blanket	50 lbs.
Adhesives	150-175 lbs.	Gypsum board	6,400 lbs.
Glass fiber	350 lbs.	Wood preservative	4 lbs.
Paint	4-5 gal.	Formica sheeting	48 sq.ft.
Other finishes	3 gal.	Asphalt shingles	3,200 lbs.
Sealers	5 lbs.	Polystyrene perimeter insulation	80 lbs.
Calking materials	12 lbs.	Window stripping	25 lbs.
Fiberboard	1,750 lbs.	Plastic drawers	18 lbs.
Plywood	3,300 lbs.		

been large pattern size—squares of about 4 ft. on a side—which seems to have limited popularity with householders. In the works is a 2x2-ft. pattern "module" which may be more acceptable.

Plastics for Prefabs: Present use of plastics in prefabs includes such injection-molded items as kitchen cabinet drawers and medicine cabinet shelves. In the future, extruded plastics should find wider application—in such areas as window framing, thresholds, trim items, gutters and downspouts.

The prefab maker is well aware of the impact resistance, light weight and "colorability" of plastics for these uses, but metal and wood will dominate these areas until plastic prices come down to match those of the older materials.

Plastics seem well suited for built-in plumbing units and are feasible now. So far, however, building codes (as well as price considerations) appear to rule out any foreseeable large-scale application of these concepts.

Nonetheless, Scholz Homes Inc. (Toledo) is now supplying prefabs with plumbing and wiring already installed in its 20th Century Homes line ($10-24,000). Because it's anxious to get these on the market now, and doesn't want to be hamstrung by fighting codes, the company is now using regular copper plumbing. But C. A. Mathew, assistant sales manager, tells CHEMICAL WEEK that once code acceptance is won, his firm will undoubtedly turn to plastic pipe for hot and cold water.

The feasibility of plastic piping for this use was demonstrated early this year at the National Assn. of Home Builders' convention in Chicago. Colonial Plastics Manufacturing (Cleveland) showed a complete "plumbing wall" that could be assembled in less than 20 minutes using B. F. Goodrich Chemical's new Geon polyvinyl dichloride.

Foams: The prefab makes extensive use of foam products. Styrene foam is often used along the edges of the concrete foundation slab to reduce heat loss. Foamed-in-place materials are doing the job of wood studs in partitions. The styrene, urethane and phenolic foams used here take the place of 2x4 timbers placed between the partition surfaces to absorb shock of door closing, picture hanging, etc.

Use of foam in exterior partitions has been slowed by lack of building code approval and slight cost savings. At least one company, however, offers a polystyrene foam that has Federal Housing Authority approval for use in load-bearing surfaces, and foams are likely to be making inroads in that application soon.

Looking Up: Although roofs and ceilings are now field-applied, the prefab builders are all working on roofs that eliminate sheeting material and ceiling systems that have insulation, sound-deadening and paint that's applied before delivery to the building site. Such panels are available for commercial buildings but in forms too costly for home fabrication use.

How to Crack It: The tremendous potential of the prefab house market is closely linked to some of the distinctive characteristics of this business.

Points to consider:

- The prefab maker is extremely cost-conscious and will become more so as he goes after the low-income householder market.
- Most purchases are made in bulk and most buying is direct rather than through jobbers.
- Inventory turnovers average about 14-16 yearly for the prefab maker. He keeps his inventory at a minimum and demands fast delivery.

Of all these factors, price is by far the most important. The prefab maker gets only 23-30% of the retail price of the house from his customer, the franchised dealer. To turn out a $12,000 house for $3,000-3,500 and still make a profit, obviously calls for some strenuous cost control on the part of the makers.

Market Targets: Prime targets for anyone selling to the prefab field include such companies as National Homes and its subsidiaries (American Homes, N.H. of California, W. G. Best Corp., Knox Homes, Thyer Mfg. Co., Lester Bros., Fairhill Division). Other major factors in the field: Scholz Homes, Inc. (Toledo); Inland Homes Corp., (Piqua, O.); Crawford Corp. (Baton Rouge, La.); Harnischfeger Homes (Port Washington, Wis.); Admiral Homes (West Newton, Pa.); U.S. Steel Homes Division of U.S. Steel Corp. (Pittsburgh), Kingsbury Homes Corp. (Fort Payne, Ala.).

In the industrial field, Butler Manufacturing Co. (Kansas City, Mo.) and Parkersburg Rig and Reel Co. (Parkersburg, W. Va.) are among the companies whose product requirements are similar to those of prefab house makers.

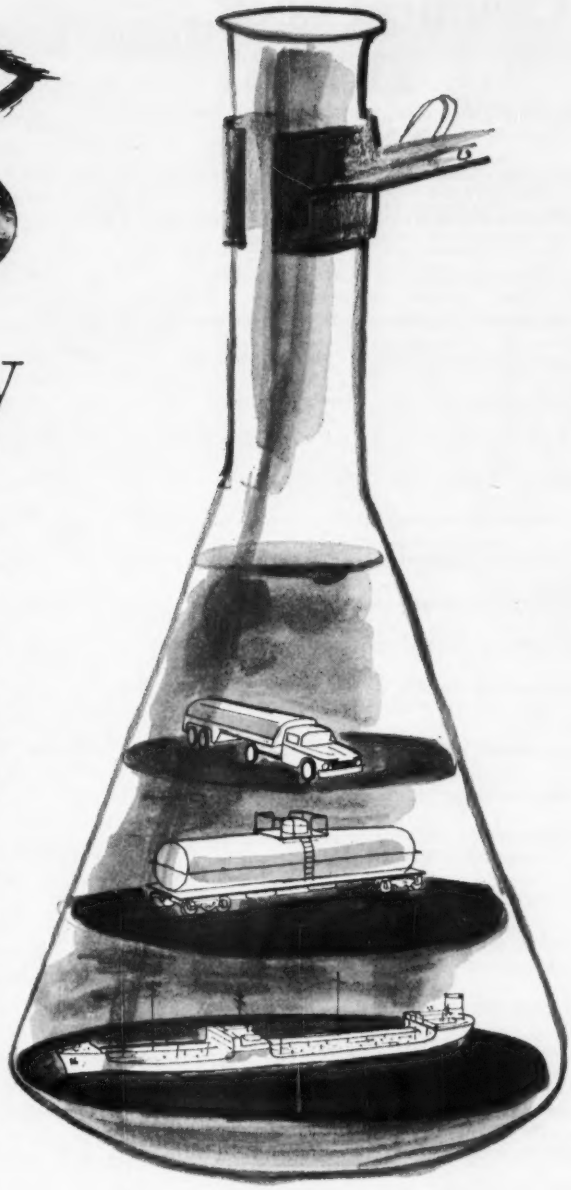
Makers of mobile homes—trailers—which also utilize many of the prefab house techniques, are also potential customers. Major factors in that field are Vought Industries Inc. (Dallas), Detroiter Mobile Homes (St. Louis, Mich.), Guerdon Industries Inc. and Marlette Coach Co. (both in Marlette, Mich.).

Many of the products that have been developed for prefab housing could find substantial markets in the more conventional on-site building field.

Homer Harris, vice-president of Crawford Corp. (Baton Rouge), tells CHEMICAL WEEK that in the past 15-20 months many home builders and constructors have begun accepting prefabricated housing components. These builders, he says, are frankly copying methods once used only by the "prefabers."

Another example of adaptation of

eye buy



As markets become bigger, customer needs greater, and competition stiffer . . . the most costly problem in moving-products-at-a-profit is getting buyer and seller together in the right place at the right time.

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The BUYERS' GUIDE is possessed of too many natural advantages *(especially its exclusive, all-paid audience of 48,000 management subscribers to Chemical Week)* to detail and document here. This is merely to remind you that a goodly percentage of the people you sell to — and against — will be using the new edition when it's off the press in September. *No, it's not too late to get in!*

Chemical Week Buyers' Guide Issue

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Chemical Week
ADVERTISERS' INDEX

ALLIED CHEMICAL CORP., BAKER & ADAMSON DIV. Agency—Kastor, Hilton, Chesley, Clifford & Atherton, Inc. ..... 3rd cover

AMERICAN CYANAMID CO. Agency—Erwin Wasey, Ruthrauff & Ryan, Inc. 6

AMERICAN OPTICAL CO., SAFETY PRODUCTS DIV. Agency—Fuller & Smith & Ross, Inc. 67

ARAPAHOE CHEMICALS, INC. Agency—The Schuyler Hopper Co. 80

ARMOUR INDUSTRIAL CHEMICAL CO. Agency—The Buchen Co. 14-15

BAKER PERKINS, INC. Agency—Price, Tanner & Willox, Inc. 78

BEMIS BRO. BAG CO. Agency—Gardner Advertising Co. 12

BUTLER MFG. CO. Agency—Aubrey, Finlay, Marley & Hodgson, Inc. 61

CARLISLE CHEMICAL WORKS, INC. 44

CHEMICAL WEEK BUYERS' GUIDE 89

CROWN CORK & SEAL CO. Agency—Al Paul Lefton Co. 35

DELHI TAYLOR OIL CORP. Agency—Sam J. Gallay Adv. 13

DIAMOND CRYSTAL SALT CO. Agency—Duffy, McClure & Wilder, Inc. ... 64

DISTILLATION PRODUCTS INDUSTRIES, DIV. OF EASTMAN KODAK CO. Agency—The Rumrill Co., Inc. 70

DURIRON CO., THE Agency—Odiorne Industrial Adv., Inc. ..... 4th cover

EMERY INDUSTRIES, INC. Agency—Farson, Huff & Northlich, Inc. 86

ENJAY CHEMICAL CO., A DIV. OF HUMBLE OIL & REFINING CO. Agency—McCann-Erickson, Inc. 62-63, 77

ETHYL CORP. Agency—Reach, McClinton & Co. 2

GENERAL AMERICAN TRANSPORTATION CORP. Agency—Edward H. Weiss & Co. 74

GIRDLER CORP. Agency—Strauchen & McKim, Inc. 30-31

HARCHEM DIV., WALLACE & TIERNAN, INC. Agency—Barber & Drullard, Inc. 43

HERCULES POWDER CO. Agency—Fuller Smith & Ross, Inc. 32, 36

JEFFERSON CHEMICAL CO. Agency—Robinson, Gerard, McGary, Inc. 16

KAISER CHEMICALS, KAISER ALUMINUM & CHEMICAL SALES, INC. Agency—Young & Rubicam, Inc. 8-9

LINDE CO., DIV. OF UNION CARBIDE CO. Agency—J. M. Mathes, Inc. 53, 55, 57

LUCIDOL DIV., WALLACE & TIERNAN, INC. Agency—Barber & Drullard, Inc. 42

MAAS & CO., A. R. Agency—M-A Advertising Agency 37

METAL HYDRIDES, INC. Agency—Creamer-Trowbridge & Case, Inc. 72

MINNEAPOLIS-HONEYWELL REGULATOR CO. Agency—The Aitkin-Kynett Co. 11

NEVILLE CHEMICAL CO. Agency—Bond & Starr, Inc. 26

NORTH AMERICAN CAR CORP. Agency—Roche, Rickerd & Cleary, Inc. ... 1

OLIN MATHIESON CHEMICAL CORP. Agency—Van Sant, Dugdale & Co., Inc. 29

OLIN MATHIESON CHEMICAL CORP., BLOCKSON CHEMICALS Agency—Wm. Balsam Adv. 52

ORONITE DIV., CALIFORNIA CHEMICAL CO. Agency—L. C. Cole Co. 85

PATTERSON KELLEY CO., INC. Agency—G. M. Basford Co. 82

POWELL CO., THE WILLIAM Agency—The Ralph H. Jones Co. 4

PRESSED STEEL TANK CO. Agency—The Buchen Co. 7

REICHHOLD CHEMICALS, INC. Agency—MacManus, John & Adams, Inc. .. 68

RESISTOFLEX CORP. Agency—Adams & Keyes, Inc. Adv. 58-59

SCIENTIFIC DESIGN CO. Agency—Michel Cather, Inc. 38-39

SHARPLES CORP., THE Agency—Renner, Inc. 54

SHELL CHEMICAL CO. Agency—Ogilvy, Benson Mather, Inc. 19

SINCLAIR PETROCHEMICALS, INC. Agency—Geyer, Morey, Madden & Ballard, Inc. 56

TEXAS GULF SULPHUR CO. Agency—Sanger Funnell, Inc. 40

TITANIUM ALLOY MFG. DIV. OF NATIONAL LEAD CO. Agency—Comstock & Co. 60

TITANIUM PIGMENT CORP., SUB. OF NATIONAL LEAD CO. Agency—Doyle, Kitchen & McCormick, Inc. 10

TRUBEK LABORATORIES, THE Agency—Ray Ellis Advertising ..... 2nd cover

UNION CARBIDE CHEMICALS CO., DIV. OF UNION CARBIDE CORP. Agency—J. M. Mathes, Inc. 71

VOGT MACHINE CO., HENRY Agency—Farson, Huff & Northlich Adv. 20

WITCO CHEMICAL CO. Agency—Hazard Advertising Co. 81

WYANDOTTE CHEMICALS CORP. Agency—Ross Roy, B.S.F. & D., Inc. .. 45-48

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prefab techniques to on-site building can be found in Hawaii. There, Henry J. Kaiser uses a volcanic rock and epoxy cement block construction technique to form 92-in.-long wall slabs, and 19-ft.-long roofing members. These slabs are put together at the building-block plant, then trucked as a unit to the construction site, where reinforcing bars are added.

Contractors seeking helpful suppliers within the chemical industry, Harris contends, are likely to run into problems. He feels that the chemical industry doesn't quite know how to apply in practice the product results of its tremendous technology, or even know the basic problems of home building. Specifically, he feels that, rather than deal in small specialty "trim" items, the chemical industry should try to develop some large-volume structural components that will use chemicals in tonnage quantities.

Bullish: A look into the "prefab future" is provided by Professor Carl Koch of Massachusetts Institute of Technology, an expert in the field of residential architecture. He tells CHEMICAL WEEK that the time is approaching when "most construction, housing and commercial, will be prefab."

"Prefabrication," he contends, "offers the only way to get housing built with the kind of value and efficiency we have come to expect in every other part of life. We would not accept in any other industry the kind of waste that we have in housing construction. But people are becoming more aware of the benefits of prefinished materials and prefab methods and, consequently, are beginning to demand them."

He sees a trend toward big use of prefabs in garden-type city structures with movable, adjustable components, and the building of many week-end houses or smaller vacation area cottages.

Although Koch may be overly optimistic, almost all authorities agree that in the next five years, the number of prefab houses each year will almost double. By '65 one of every six houses (in a 1.7-million-new-house market) will be a prefab. The market potential is clear for anyone who can deliver his product at a price that strengthens the position of the prefab maker in a market oriented toward the lower end of the income scale.

EXPANSION

Paneler Purchase: Glidden Co. (Cleveland) has purchased McPhran Corp. (Marietta, Ga.), maker of glass-fiber panels for wall partitions, patios and other uses. The acquisition gives Glidden an outlet for its polyester resins.

•

Polymer Producer: New manufacturing and distribution facilities have been set up at City of Industry, Calif., by Air Reduction Chemical & Carbide Co. (New York, N.Y.). The plant will turn out polymers and copolymer emulsions for the paint, adhesive and paper coatings field. A warehouse on the eight-acre tract replaces a bulk terminal formerly maintained at City Terrace, Los Angeles.

•

Purchases Property: Speedry Chemical Products, maker of marking materials, has purchased 40,000 sq. ft. of land in Glendale, L.I., N.Y. The company will add 50,000 sq. ft. of plant space to a 33,000-sq.-ft. plant already on the property, and will transfer most of its manufacturing, shipping and warehousing from its present location in Richmond Hill, L.I. Executive offices will remain in Richmond Hill.

•

Name Changers: Several companies in the chemical specialties area have new appellations:

- Scientific Oil Compounding Co. (Chicago) is changing its name to Scientific Chemicals to better describe its function as a chemical processing company.
- Acorn Adhesives (Los Angeles) has changed its name to Wilhold Glues Inc., to better tie the retail name of its products to the corporate name. The company will retain the Acorn Adhesives name—for use by manufacturing division.

•

Syndets Down South: Procter & Gamble (Cincinnati, Ohio) will build a synthetic detergents plant in Augusta, Ga. Construction will begin this fall, be finished in '63. The plant will produce P&G packaged items, such as Tide, Cheer, Oxydol, Premium Duz, Dreft, and Dash. It will also be the Southeastern warehousing and distribution point for P&G's soap products, toilet goods and food products.

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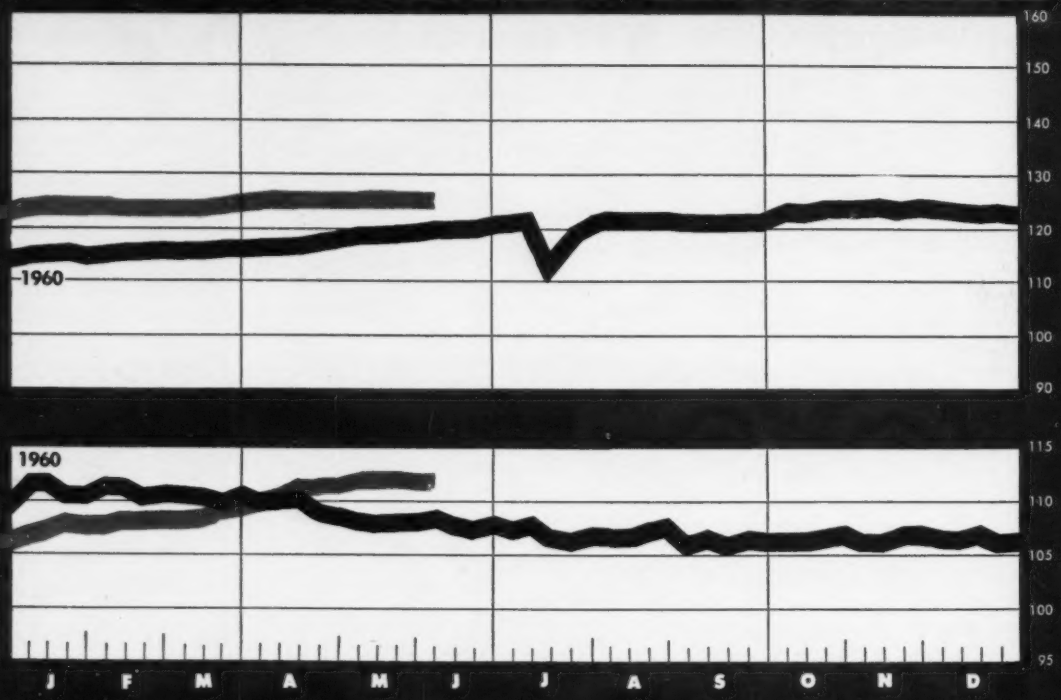

JUNE 3, 1961

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
Chemical Week output index (1957=100)	125.5	125.9	121.6
Chemical Week wholesale price index (1947=100)	112.9	112.9	109.0
Stock price index (12 firms, Standard & Poor's)	52.86	53.09	51.32
Steel ingot output (thousand tons)	2,037	1,988	1,906
Electric power (million kilowatt-hours)	14,352	14,278	13,831
Crude oil and condensate (daily av., thousand bbls.)	7,061	7,013	6,864

PRODUCTION INDICATORS (1957=100) (without seasonal adjustment)	Latest Month	Preceding Month	Year Ago
All manufacturing	106	103	110
Nondurable goods manufacturing	113	112	114
Durable goods manufacturing	100	97	108
Chemicals and allied products	122	120	125
Industrial chemicals	127	125	128
Petroleum and coal products	103	104	104

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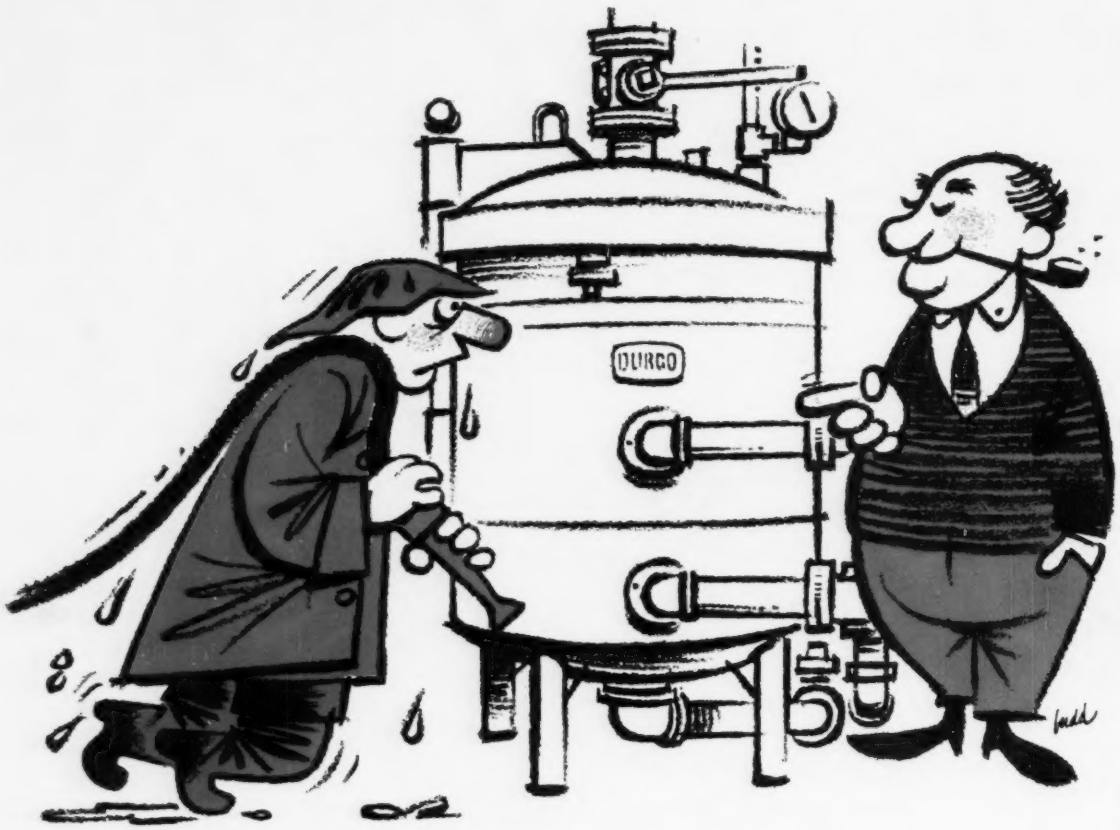

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